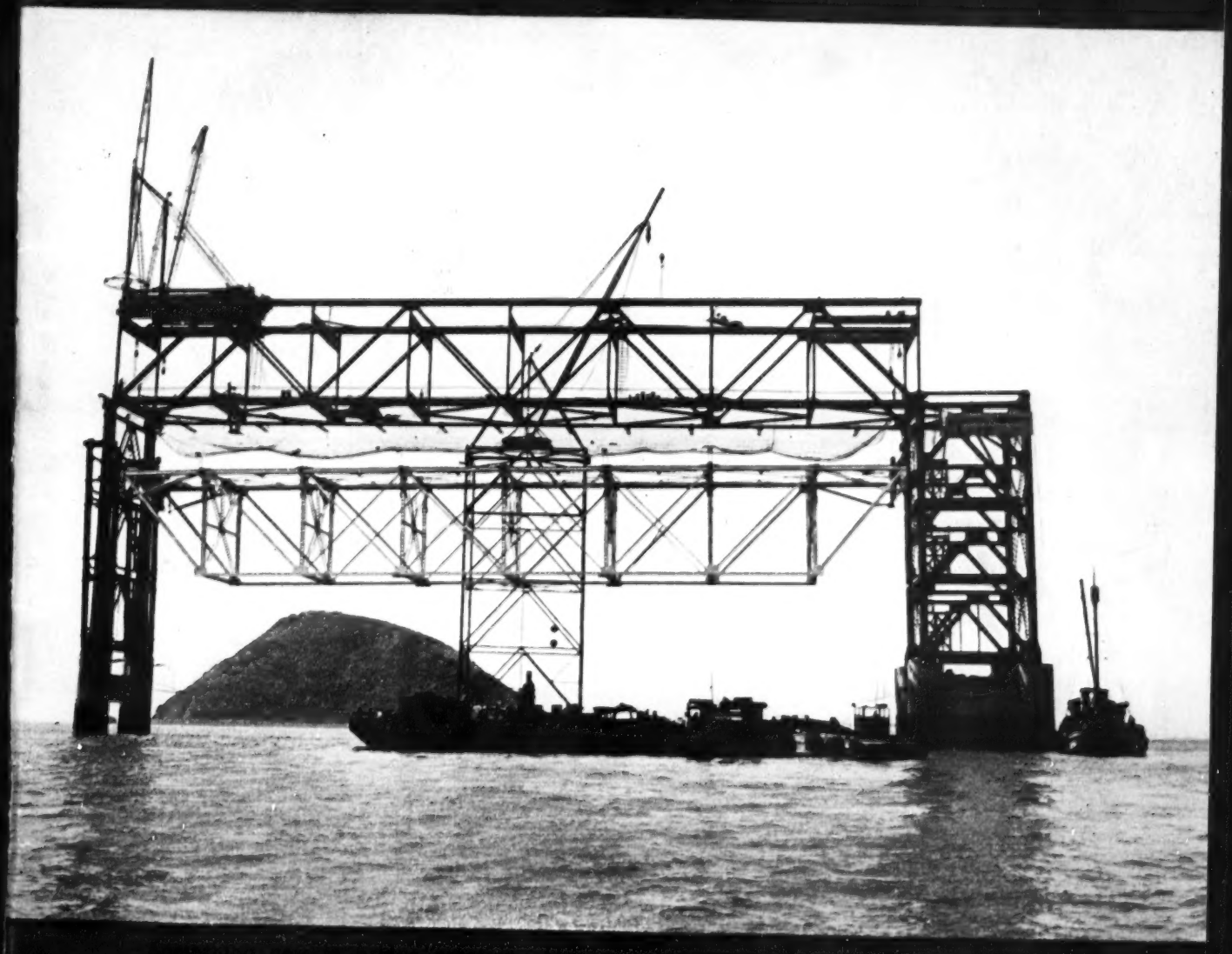
ENGINEERING NEWS-RECORD

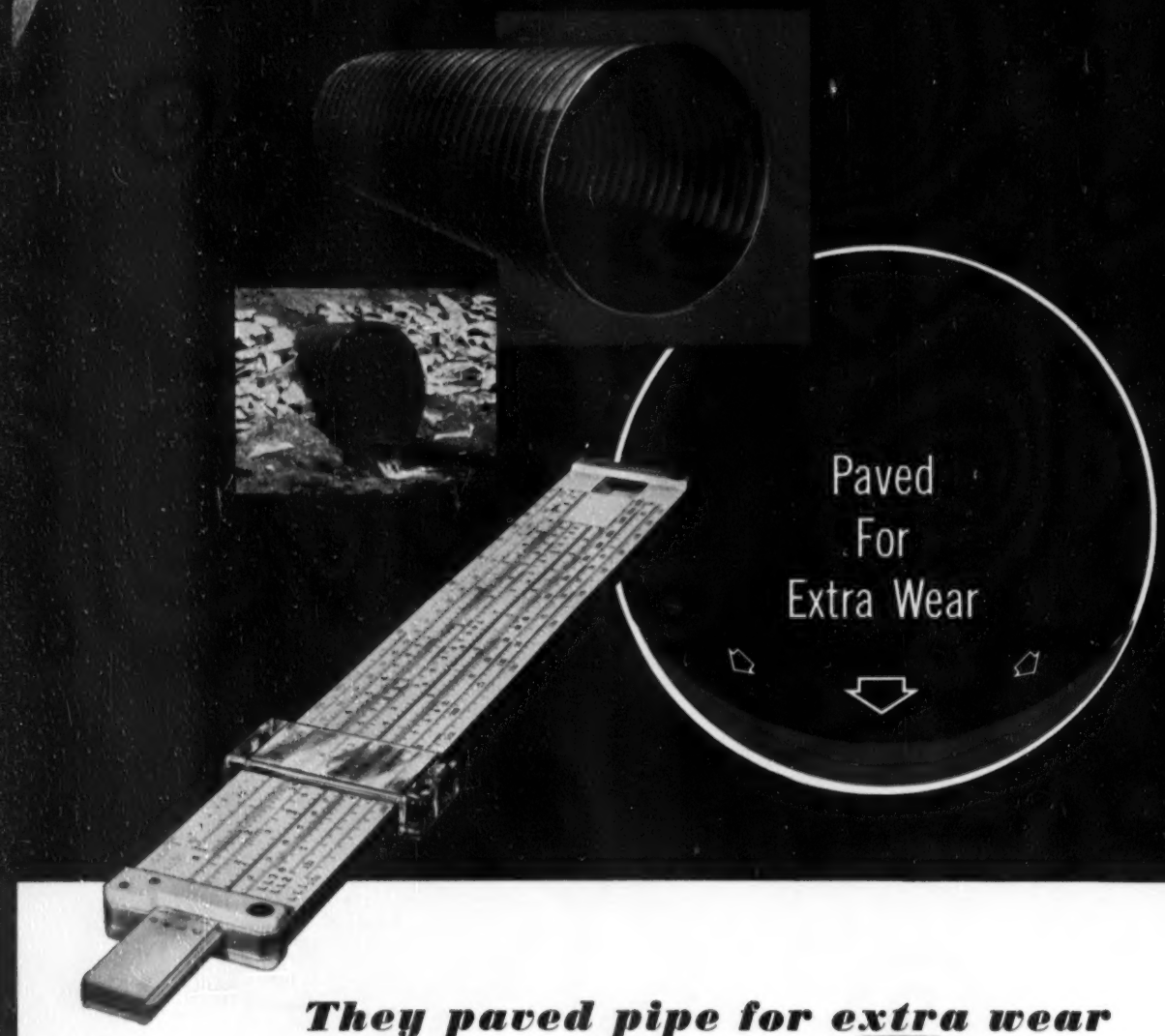


★ Stress losses in prestressed concrete

★ Astronomer's eye is [illegible]

A McGRAW-HILL PUBLICATION

E B POWER GS
UNIVERSITY MICROFILMS IN
313 N 1 ST
ANN ARBOR MICH



They paved pipe for extra wear

The invert in all types of drainage structures is the part that generally gets the most wear. To Armco engineers this meant reduced service life and lowered efficiency.

They reasoned that if they could make the invert of Armco Corrugated Metal Pipe last as long as the upper part, everyone would benefit.

To do this, they developed Armco PAVED-INVERT Pipe. It has a special bituminous pavement that resists abrasive flow, adheres tightly to the pipe, and stands up under all types of weather conditions. Now the bottom lasts as long as the top and drainage costs are down.

PAVED-INVERT is only one of many Armco Drainage and Construction Products developed to meet specific needs. There is Armco Pipe-Arch, designed to provide drainage under limited headroom. Armco ASBESTOS-BONDED assures ample material durability for extremely corrosive conditions. For water and gas lines, as well as foundation piling. Armco engineers perfected automatic machines that would turn out steel pipe in lengths up to 50 feet and more in a wide range of sizes. Automatic machines also produce economical Armco HEL-COR Pipe that is widely used for pile shells and in subdrainage systems. The list of other Armco-developed products includes steel buildings, re-usable steel sheeting, bin-type retaining walls, and corrugated metal bridge plank.

Today you can bring your drainage and construction problems to Armco with full assurance that you will receive all the benefits of long experience, extensive research and a real interest in helping you solve them.

ARMCO

ARMCO DRAINAGE & METAL PRODUCTS, INC.

HAMILTON, OHIO • OFFICES AND PLANTS IN PRINCIPAL CITIES
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Structural Plate Pipe and Arches • Corrugated Metal Pipe • Welded Steel Pipe
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• The sheaves of this power shovel get a shot of clean new lubricant. The operator is using Alemite Hand Gun 1056-SE. This lever type gun has plenty of power to push out old grease and dirt—has large capacity to service many bearings without refilling.

where schedules are tight and time is money, it's

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• Here the Alemite Hand Gun is refilled quickly with Alemite Loader Pump 7181-L. Just eight strokes of the pump fills the gun with no mess, no waste, no troublesome air pockets. Lubricant is protected at all times from dust, dirt and grit that can ruin bearings.

• Here an Alemite Tractor Bucket Pump 6521-B gives the positive lubrication protection demanded by bearings of track support rollers against dirt and grit. Engineered to provide both high pressure and volume delivery, this pump has become the standard of the industry.

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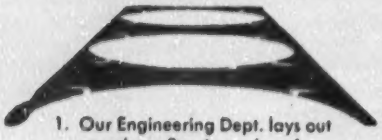

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Robert F. Boger
Publisher

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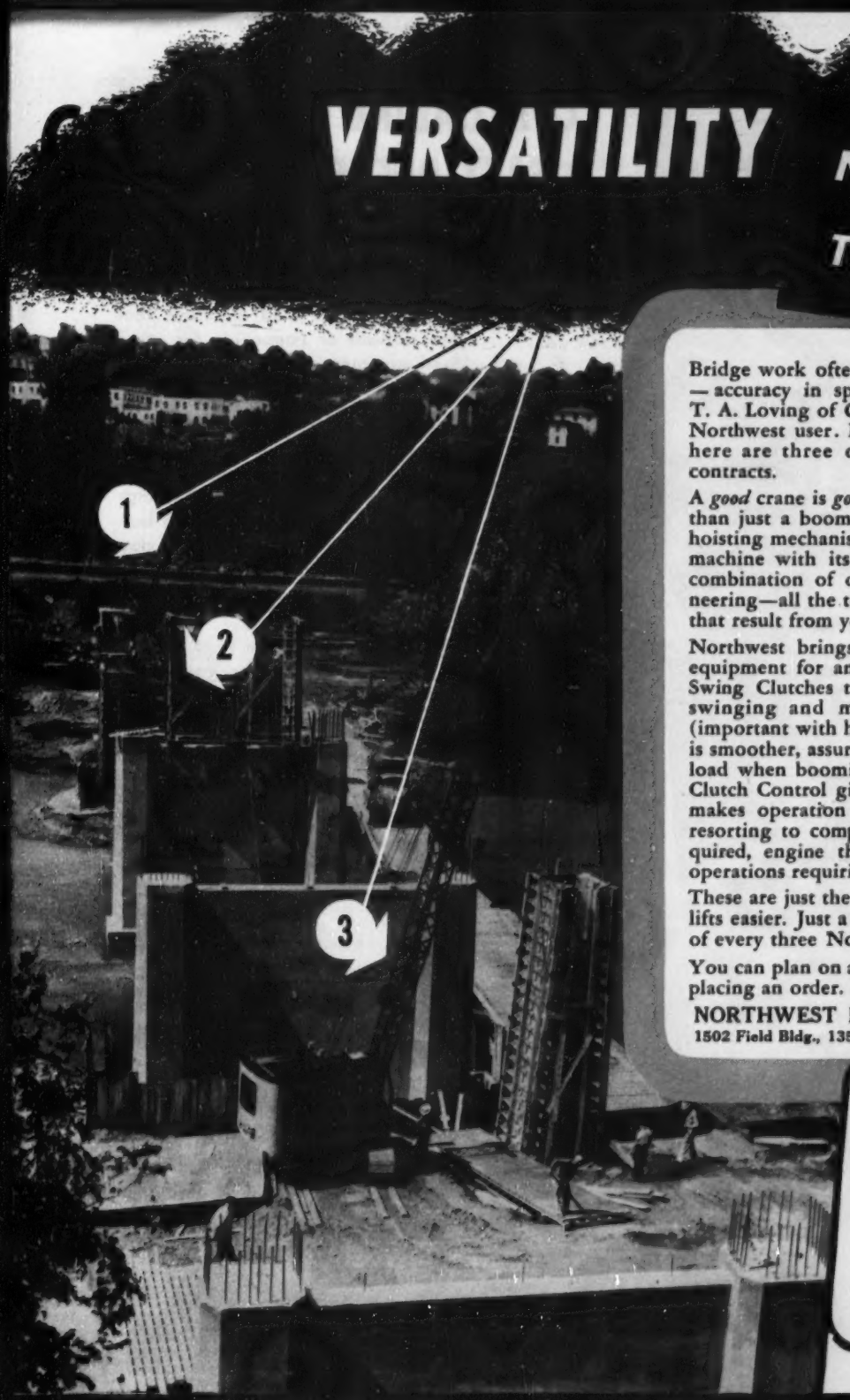
VERSATILITY

SEVENTEEN NORTHWESTS for T. A. LOVING
Goldsboro, N.C.



Bridge work often calls for niceties in operation — accuracy in spotting, flexibility in booming. T. A. Loving of Goldsboro, N. C. is an old-time Northwest user. He has had 17 Northwests and here are three of them on one of his many contracts.

A *good* crane is *good* on every crane job! It's more than just a boom — or a feature — a clutch or a hoisting mechanism. It's a combination of a basic machine with its multiplicity of advantages — a combination of design, materials, balance, engineering—all the tangible and intangible qualities that result from years of experience.

Northwest brings you a choice of boom hoist equipment for any condition. Uniform Pressure Swing Clutches take the jerks and grabs out of swinging and makes spotting the load easy (important with high booms). Northwest steering is smoother, assures easier manuevering with the load when booming high. The "Feather-Touch" Clutch Control gives the "feel of the load" and makes operation smoother and easier without resorting to complicated mechanisms. When required, engine throttle control is available for operations requiring variable speed.

These are just the high spots for making the high lifts easier. Just a few of the reasons why one out of every three Northwests sold is a repeat order.

You can plan on a Northwest! Why not talk over placing an order. Get the full story.

NORTHWEST ENGINEERING COMPANY
1502 Field Bldg., 135 South LaSalle St., Chicago 3, Illinois

If you need rubber tired equipment, Northwest Truck Cranes bring you a combination of advantages in Crane and Carrier not found in other similar equipment. Get the details before you buy.

NORTHWEST

CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

CUT LOADING COSTS WITH FAST-RUGGED EIMCO'S

Yes! You cut costs when you use Eimcos for loading.

NOTE these advantages:—

Advantage: Eimcos dig and load materials that are difficult or impossible for other loading equipment.

Reason: Eimcos are designed for tough jobs — digging and loading rough, broken rock. Tracks are designed to oscillate freely even with the loader attachment. The bucket design permits digging in frozen stock piles, rough bottoms, heavy ores and in sticky clay or unbroken conglomerate.

Advantage: Eimcos are more maneuverable.

Reason: Eimcos use independent track control. Separate levers control each track and one track can be run forward while the other runs reverse.

Advantage: Eimcos last longer.

Reason: Torque converter drive is standard on Eimcos. All castings are alloy steel, all construction is extra heavy-duty.

Advantage: Eimcos load faster.

Reason: The overhead principle developed by Eimco is faster. Complete cycle is 10-12 seconds. Shifting from high to low on tractor or loader is done in motion. Shifting from forward to reverse can be done at full speed.

Other Advantages Include: Better visibility with the operator up front. Easier maintenance with clutches that never need adjustment and elimination of all clutches, brakes and gadgets in the final drive.

Let an Eimco engineer show you how you can cut loading costs on the next job.

Eimco 105 with bulldozer attachment

Eimco 105

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Salt Lake City, Utah—U.S.A. • Export Offices: Eimco Bldg., 52 South St., New York City

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OF LOS ANGELES COUNTY

Chief Engineer and
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South Gate needed good sewer pipe . . . and needed it *fast.*

American Vitrified Products Co., with its new West Coast plant, could make *immediate* delivery of several thousand feet of 63-inch reinforced concrete pipe in 8-foot lengths for this joint outfall sewer for the County Sanitation Districts, Los Angeles County.

American's policy of expanding their plants to serve growing areas paid dividends for *both* county and contractor.

Concrete pipe is just one of the many products manufactured in our plants across the nation. We also produce clay pipe, flue liners, both glazed and unglazed, clay liner plates and the new Amvit Jointed clay sewer pipe.

For more information, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

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TUNE IN...TEXACO
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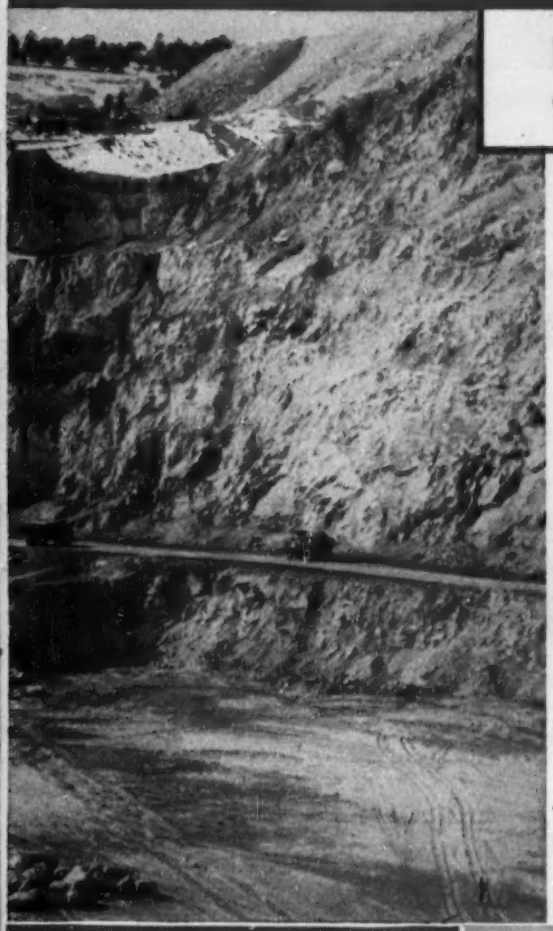
starring
DONALD O'CONNOR
or JIMMY DURANTE
on television...
Saturday nights, NBC.

TEXACO

MAINTENANCE COSTS



Reports Isbell Construction Company, Reno, Nevada

"WITH TEXACO MARFAK," reports the Isbell Construction Company, "we've enjoyed over 15 years of low maintenance costs and extra long chassis parts life. Our experience has shown that no matter how tough the terrain, *Texaco Marfak* stays in the bearings and really gives them protection against dirt and moisture."

Contractors everywhere get similar results with *Texaco Marfak*. It won't squeeze or jar out, stays in the bearings, effectively guards against wear and rust. It's top assurance of lower maintenance costs, longer bearing life.

In wheel bearings, use *Texaco Marfak Heavy Duty*. Isbell does and finds that it safeguards bearings for extra thousands of miles between repackings, increases bearing life, assures greater braking safety. No seasonal change required.

More than 500 million pounds of Texaco Marfak have been sold

For crawler tracks, *Texaco Track Roll Lubricant* is ideal. It wards off rust and wear—keeps out dirt and moisture.

Let a Texaco Lubrication Engineer help you step up your equipment efficiency, cut down on maintenance costs. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO SIMPLIFIED LUBRICATION PLAN

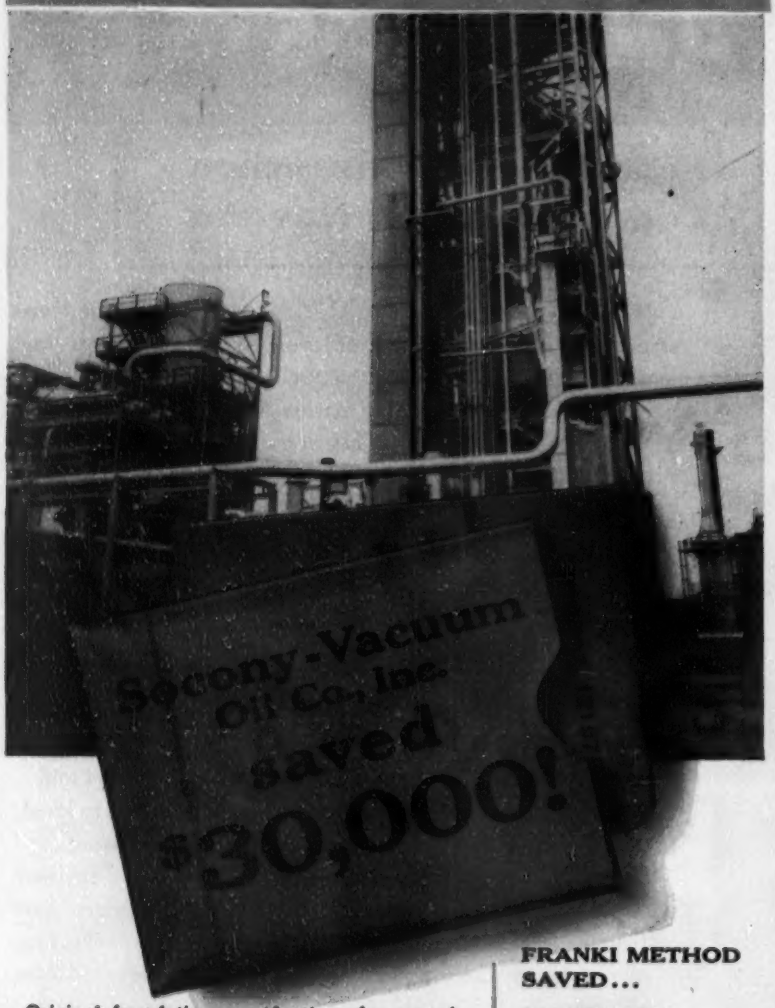
With *not more than six* Texaco Lubricants you can handle *all* your major lubrication. The plan saves time and money, reduces lubricant inventories, eliminates lubrication mistakes. Ask a Texaco Lubrication Engineer all about it.

To keep its equipment on the job, and maintenance costs low, Isbell Construction Company—highway builder, open pit mining contractor—has been using Texaco Products for years.

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

JOB AFTER JOB, FRANKI FOUNDATIONS
SAVE TIME, TROUBLE and MONEY!



Original foundation specifications for a modern catalytic cracking unit for Socony-Vacuum's East St. Louis Refinery called for 30-ton pre-cast concrete piles. The Lummus Co., of New York City, the consulting engineers, substituted Franki Displacement Caissons because extremely heavy vertical loads and high up-lift conditions *had* to be met.

A total of 119 Franki Displacement Caissons were installed, each providing a vertical load capacity of 120 tons and up-lift resistances up to 50 tons per unit. The Franki method made it possible to greatly reduce the cap concrete and install the foundation to shallower depths. Result: *The Lummus Co. saved valuable time, trouble and materials, and Socony-Vacuum saved $30,000!*

Write to Franki Foundation Co., 114 E. 40th St., N. Y., for brochure describing Franki Methods and "Franki Facts" on this job.

FRANKI METHOD SAVED...

U. S. AIR FORCE
Limestone, Maine
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FOUNDATION COMPANY
NEW YORK, N. Y.
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FIRM FOUNDATIONS FOR OVER FORTY YEARS

READER COMMENT

Turnpikes and local traffic

SIR: I disagree with the implication of your editorial on toll roads based on New Jersey Turnpike conclusions (ENR Oct. 14, 1954, p. 84). Your writer states: "Money spent on toll turnpikes through thickly populated areas makes little or no contribution to the cost of solving local traffic problems in those areas." He intimates that construction of toll roads has been an endeavor to remedy local problems.

For the most part, our modern toll roads have made no pretense of doing this. They are based on the philosophy that our country has certain basically characteristic traffic movements between key areas such that with selected generating termini and as few as possible intermediate interchanges serving large volumes of traffic, there will be consistently sufficient vehicles to pay for a minimum investment.

This fact by no means invalidates this method of highway finance. It simply means a different philosophy is indicated for the location, financing, and design and layout of future "expresspikes". Here is a fertile field for state, federal and private cooperation in the near future.

THOMAS E. GOLDEN, JR.
Noroton, Conn.

Not entirely new

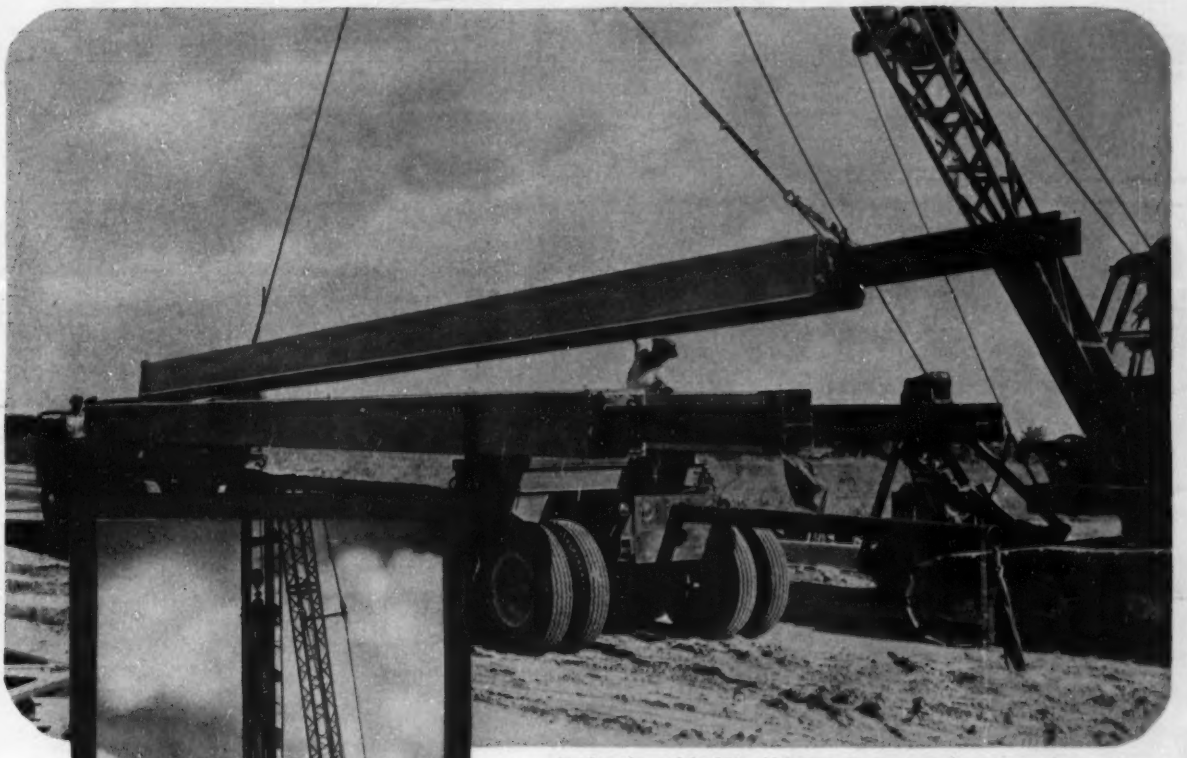
SIR: We were interested in reading the description in ENR, Sept. 30, p. 28, of Mr. Charles R. Velzy's idea of recording field survey data directly on prints of photogrammetric maps. The basic idea, however, is not new as our firm has been using it for over five years to expedite field and office work.

Our first large-scale application of the idea was on an Atomic Energy Commission contract for subdividing the city of Oak Ridge, Tenn. In this case, an entire city of 35,000 population had been built without any individual property lines. Our problem was to provide a lot for each residential, commercial and public building. Lot lines were planned in the office on an overlay of a 1 in.: 50 ft-scale controlled mosaic of the city.

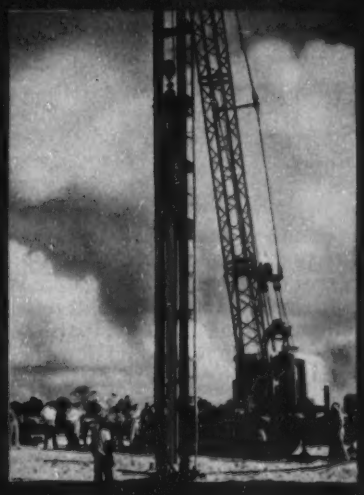
In the field, the party chief recorded directly on the map the required distances and angles. For ease in recording, the sheets were mounted on a plane table board and tripod providing the party chief with a portable field drafting table. In the office, a com-

(Continued on page 15)

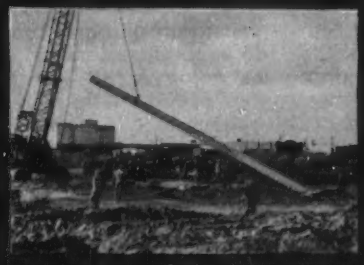
NOW—PRESTRESSED CONCRETE PILES OPEN ANOTHER BIG MARKET



Loading three of the 20" x 20" composite prestressed concrete and steel test piles cast for the new Gandy Bridge by Florida Prestressed Concrete Co., Inc., Tampa, Florida.



Driving a 50-foot precast, pre-tensioned pile, designed by Lakeland Engineering Associates of Lakeland, Florida and produced by R. H. Wright & Son, Fort Lauderdale, Florida.



Handling a precast, pre-tensioned pile with one point pick-up — proving the pile's extreme strength. If a reinforced concrete pile were lifted in this manner it would buckle from its own weight.

ONE OF THE NEWEST DEVELOPMENTS in the precast, pre-tensioned concrete field is piling. Such piling has already been used for several bridges, and is now under consideration or contract for several more. Illustrated above, for instance, are composite test piles designed for the new Gandy Bridge* which will form another connection between Tampa and St. Petersburg, Florida. 30 feet long by 20 inches square, these piles have a 10-inch sonovoid hollow, and a steel H beam bottom tip extending into and beyond the end of the pile. The steel tip is sometimes added to pierce the rock strata peculiar to some areas of Florida.

The tensioning elements employed are Roebling ⅜ inch diameter, 7-wire stress-relieved Prestressed Concrete Strands, and the initial prestressing force is 151 tons.

Roebling engineers, who have led in the development of prestressing techniques and tensioning elements in America, are always ready to cooperate with you to help assure top results on any specific prestressed concrete application. Write Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

*Designed by the Bridge Division of the State Road Department of Florida.

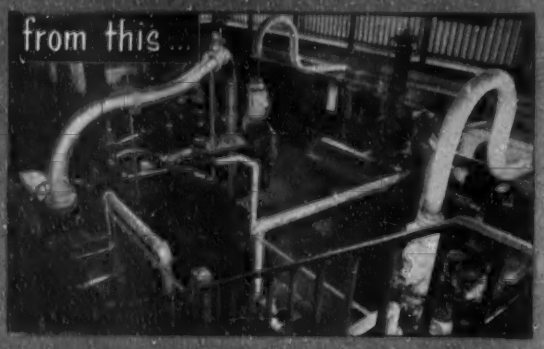
ROEBLING CF&I

Subsidiary of The Colorado Fuel and Iron Corporation

Allis-Chalmers Helps Binghamton

WATER

Paces Population—Business Growth!



TOP: Portion of pump room before conversion. Photograph shows old type pumps and steam engines used for pumping raw water. Notice crowded condition in this view.

BOTTOM: Same view after conversion, showing four Allis-Chalmers pumps for pumping raw water to mixing chamber — two 11,000,000-gpd, one 15,000,000-gpd, and one 3,200,000-gpd unit.

TO keep ahead of rapid population and business growth which has increased average daily water pumpage 1,500,000 gallons in two years, Binghamton, New York, has expanded and modernized their water works facilities. Old, outdated steam engines and inadequate pumps have been replaced with modern Allis-Chalmers municipal pumping equipment.

Binghamton is located at the confluence of the Susquehanna and Chenango Rivers in upstate New York. It is the hub of an area often called "An Empire Within the Empire State." Binghamton itself is an important industrial community of over 90,000 population which manufactures over 330 different products for the home and industry; its surrounding area is rich in fertile farm lands.

Water supply for the city of Binghamton is secured from the Susquehanna River. An average daily consumption of 9,516,846 gallons was recorded in 1953. Allis-Chalmers centrifugal pumps are used in every pumping operation, and vary in size from small 200 gallon per minute reservoir pumps to a large 15,000,000 gallon per day unit pumping raw water into the mixing chamber of the filter plant.

When *your city* plans expansion or modernization of water works facilities, do as Binghamton and other progressive communities are doing — take advantage of Allis-Chalmers many years' experience in municipal pumping equipment. Call your nearest A-C sales office for complete information, or write Allis-Chalmers, Milwaukee 1, Wisconsin.

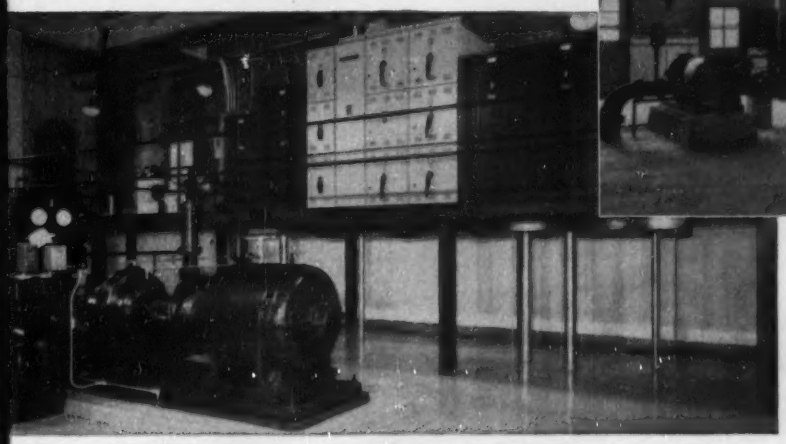
A-4352

ALLIS-

Modernize and Expand Water Works

An aerial look at Binghamton, New York, located at the confluence of the Susquehanna and Chenango Rivers. City covers an area of 9.38 square miles and has a population of over 90,000.

View of pump room, showing 12 by 10, 10,000,000-gpd Allis-Chalmers centrifugal pump and Allis-Chalmers switchgear and motor controls. Power for plant is supplied from three 500-kva Allis-Chalmers power transformers.



Two 14 by 12, 10,000,000-gpd Allis-Chalmers centrifugal pumps forcing clear water into distribution system. Four pumps feed 149 miles of water mains. Excess water is distributed to five reservoirs.

CHALMERS

A-C ALLIS-CHALMERS

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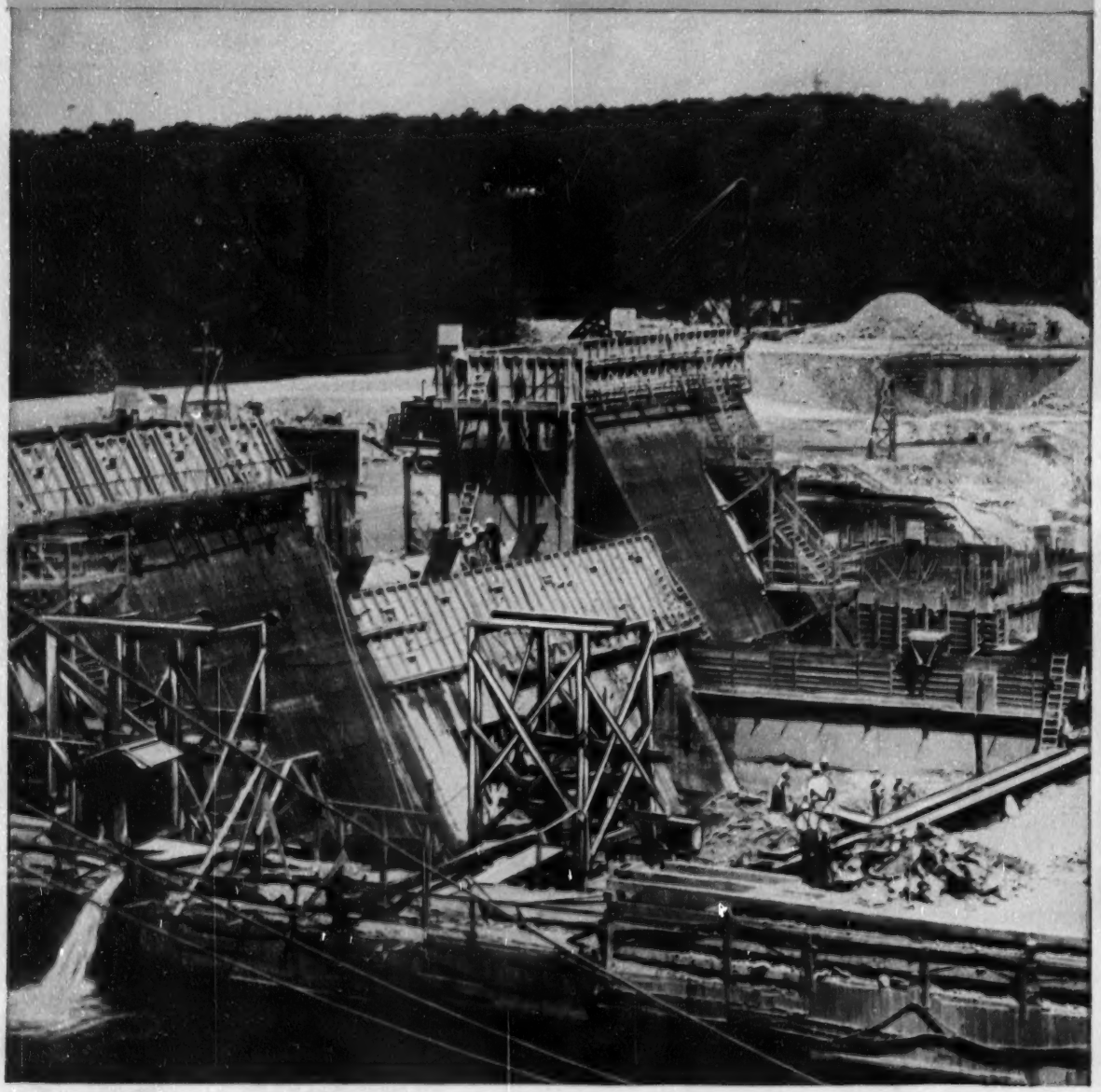

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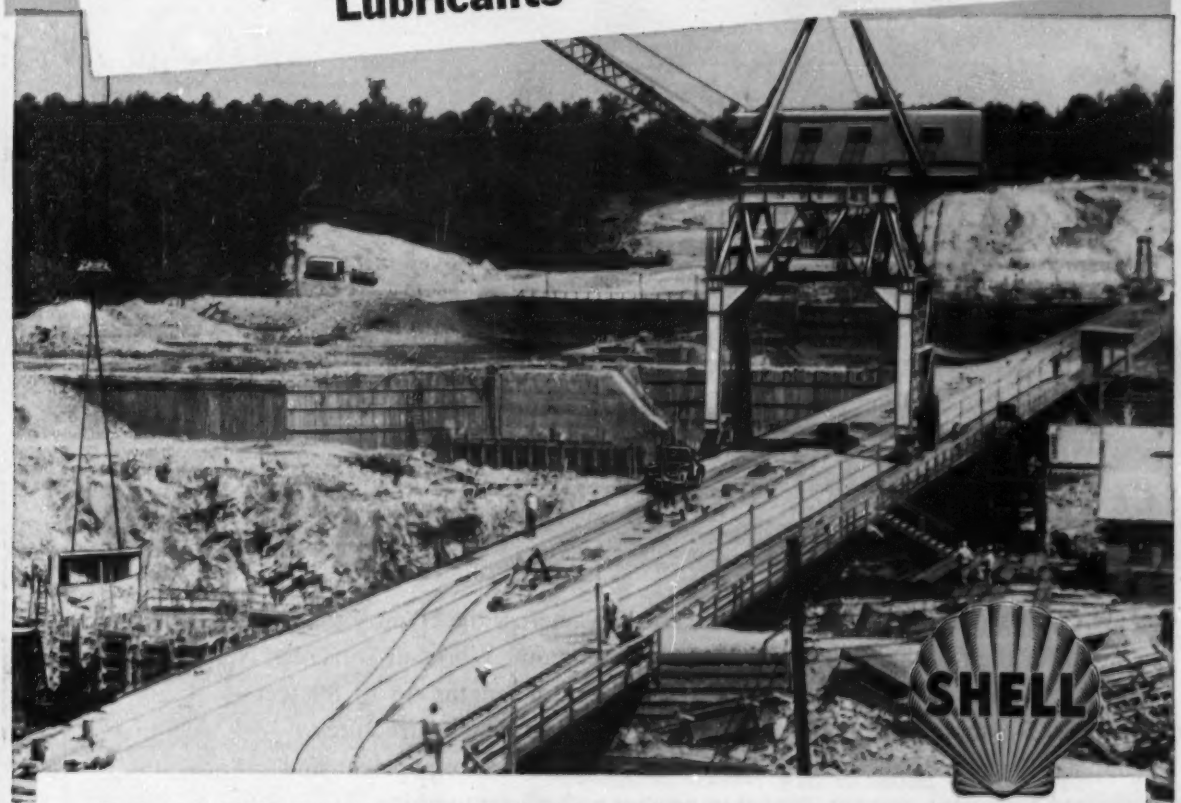

The Roanoke Rapids Project for the Virginia Electric and Power Company, being constructed by Stone & Webster Engineering Corporation, is going full speed ahead. This extensive job keeps hundreds of pieces of heavy construction equipment busy, day and night. Nearly 100% of this equipment relies on Shell Industrial Lubricants and Fuels to meet the rigorous operating conditions.

When completed, Roanoke Rapids project will supply 100,000 kilowatts of electricity for Vepco's system.

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*A diligent search could uncover only one piece of Vepco's equipment NOT using a Shell product.

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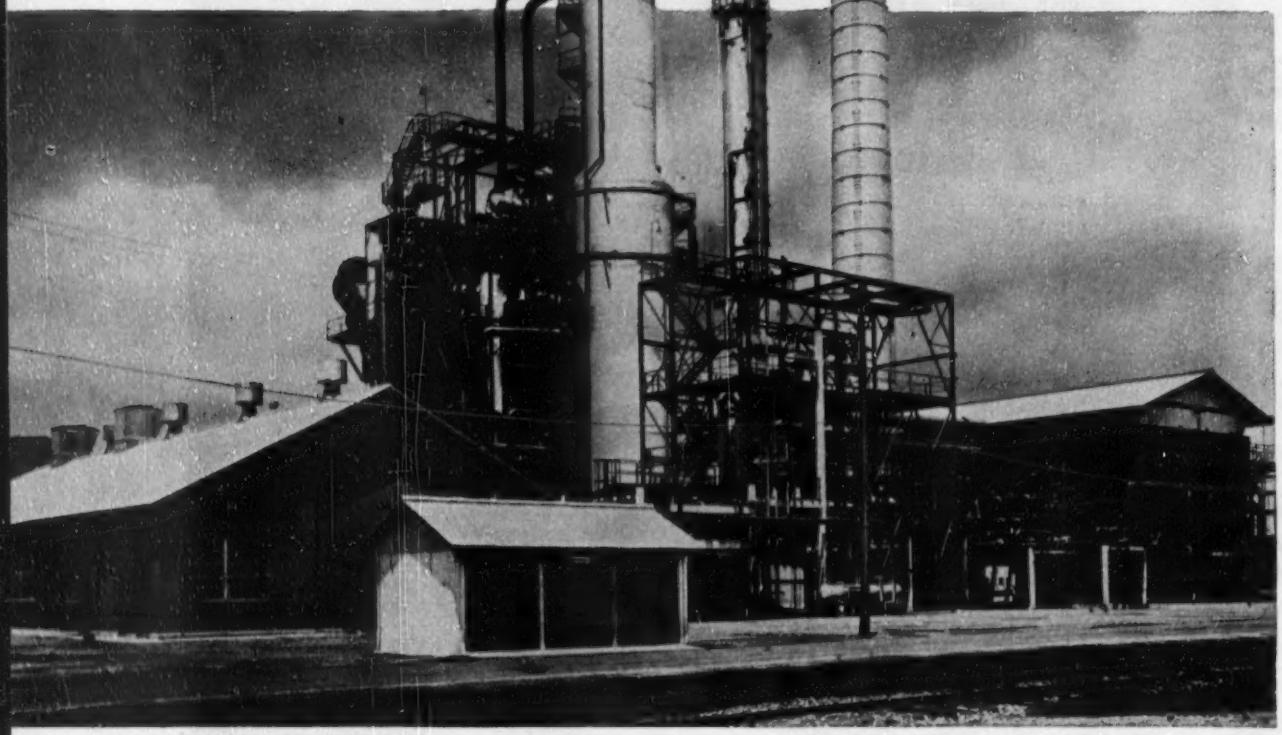

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READER COMMENT

puter checked the closure of each lot. The final map was traced directly from the mosaic and overlays with no plotting of any type required. The entire job of surveying approximately 7,000 individual lots was completed without the use of any field notebooks or plotting, except for control surveys. The time and labor saving over conventional methods was tremendous.

For several years, the practice of recording field survey data directly on stable base prints of photogrammetric maps or mosaics has been used by our firm on water distribution, sewage collection systems and pipeline projects with great success. Photogrammetry furnishes the basic planimetry and the field surveys add required field measurements.

Omissions and errors that often occur in the field notebook method are reduced to a minimum since the party chief has the full picture in front of him. Where speed is essential, the party chief is furnished with a transparent stable base positive of the photogrammetric map from which prints can be run. The map is then ready to be reproduced when it comes in from the field and computation checks have been made. Advanced prints are distributed for use before time is taken to draft the final tracing.

We are gratified to learn that the method is being used successfully by other engineers.

CHARLES L. MILLER, *Engineer*
Michael Baker, Jr., Inc.
Rochester, Pa.

CALENDAR

Air Pollution Control Association, semi-annual technical conference, Biltmore Hotel, Los Angeles, Nov. 4-6.

Structural Clay Products Institute, convention, Hotel del Coronado, Coronado, Calif., Nov. 6-10.

American Association of State Highway Officials, annual meeting, Olympic Hotel, Seattle, Wash., Nov. 9-11.

Hot Mix Asphalt Paving Associations, national meeting, Conrad Hilton Hotel, Chicago, Nov. 12.

Building Research Institute, research conference on modular measure, National Academy of Sciences, Washington, D. C., Dec. 9.

but also significant

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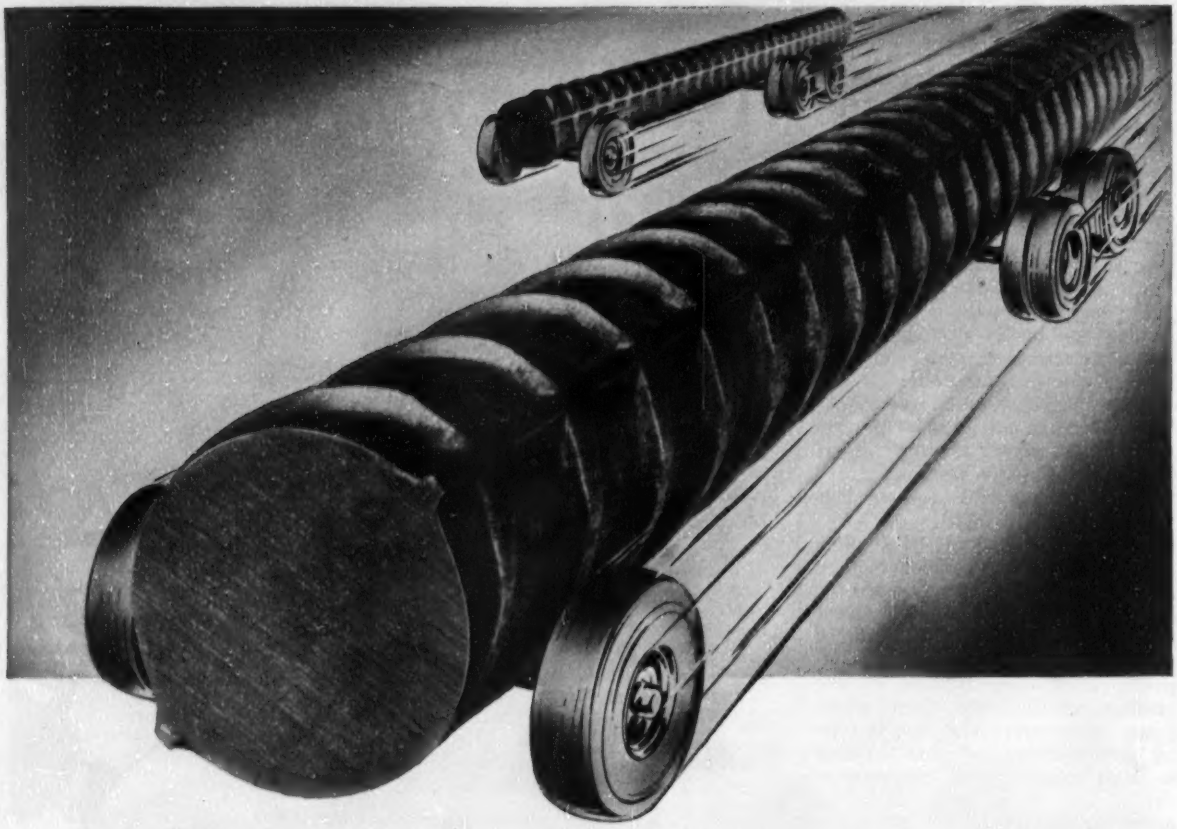

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You can be sure of getting your steel when you need it—no pile-ups—no delays—when you call on Ryerson for re-bar service.

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Hi-Bond Re-Bars for Greater Grip

First of the new high-strength bars, Hi-Bond reinforcing gives stronger construction and increased resistance to the formation of tensile cracks. Every bar meets or exceeds ASTM spec. A. 305.

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

IN-AND-OUTERS—U.S. Public Health Service Researchers, looking into why some sanitary engineers leave the field, came up with a disturbing finding:

Two-thirds of those who pull out do so even before they are in. That is, they study sanitary engineering, then take jobs in other branches.

Problem for USPHS: How to make sure students enter the field on graduation, not how to keep them from leaving it.

INTEREST DUE—Contractors (at least in Oregon) can collect interest from the State Highway Commission on delayed payments of amounts due.

The State Supreme Court held for highway contractors who had sued the commission for money on certain contract items they said were omitted from the state's payments to them—and added that the state owed interest on the payments because of the delay.

NO SPEED LIMIT?—A Pennsylvania motorist posed a neat question for state police authorities: He claimed he couldn't be penalized for speeding on the Pennsylvania Turnpike because the 'pike isn't a public highway.

Attorneys for Frederick Hergert of Drexel Hill said that since the 'pike charges tolls and is not open to all kinds of vehicular traffic, it does not come within the state highway code. If this is true, said the lawyers, Hergert shouldn't have lost his driver's license (for 90 days). The matter is set for hearing in Delaware County court December 15.

MONEY IN THE BANK—Two contractors, who submitted identical bids for construction of a drydock for Kootenay Lake Ferry service near Vancouver, B. C., refused to flip a coin for the job.

Result, the province saved $13,000.

Rather than flip a coin, the Victoria Machinery Depot Co. revised its original $234,750 bid downward.

SUPERVISION FAILURE?—U.S. attorneys in California are preparing to go to a higher court over a $312,000 award to property owners growing out of a levee failure on the Feather River 17 years ago.

A federal district court upheld landowners in their contention that the Corps of Engineers didn't properly backfill a cut made in the levee in 1934—and pointed out that supervision of the backfilling work had been left to two inspectors who weren't registered engineers.

The court impatiently overruled the Corps' defense that the levee probably had been weakened by rodents, after the levee cut (made when the structure was being heightened and strengthened) was backfilled.

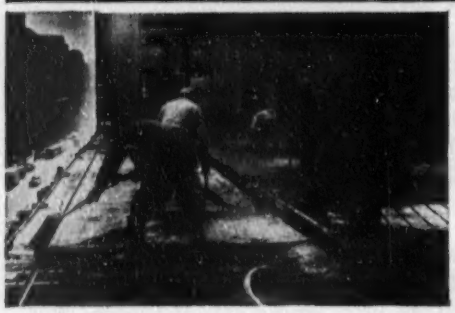
'LET THERE BE LIGHT'

'Showcase' Bank Illuminates Cold-weather Advantages of 'Incor' Concrete

● Let there be light—and plenty of it—was clearly the objective in designing this beautiful new bank, largest of Manufacturers Trust Company's 111 metropolitan New York branches, recently opened at Fifth Avenue and 43rd Street. The $3-million building, with its five floors enclosed in huge glass panes, has a wide-open, inviting look, reflecting the fact that banking is a selling service—and this one has the largest showcase in town.

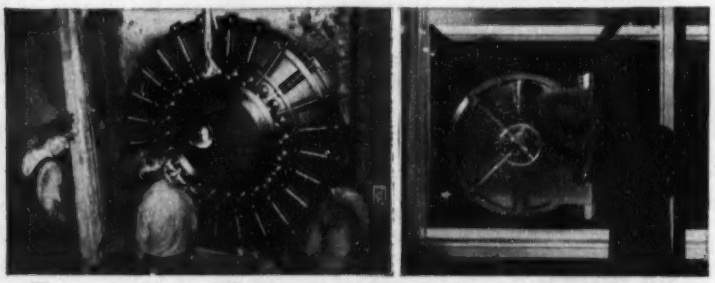
No matter what the design, concrete helps give enduring substance to the designer's creation, and somewhere on every job 'Incor' 24-Hour Cement fits in, to speed concreting and minimize costs. Here, much of the work was done in cold weather, and 'Incor' concrete was used in the 28-ft.-span east-west joist construction with 10-ft. cantilever on Fifth Avenue, in fireproofing, and in the massive vault on the main floor.

Regardless of building type, an 'Incor'* schedule usually shows the lowest cost, saving up to two-thirds on forms through faster re-use, with the added Winter advantage of eliminating frost risks with only one day's heat-protection instead of the usual 3 to 5 days. It pays to use America's FIRST high early strength Portland cement, for summer speed in winter work . . . for quality concrete at lowest cost. *Reg. U. S. Pat. Off.



Placing 'Incor' concrete for New York's handsome 'showcase' bank, recently opened by Manufacturers Trust Company, at Fifth Avenue and 43rd Street, New York City.

MANUFACTURERS TRUST COMPANY
Bank Building—5th Ave. & 43rd. St.
Architects: **SKIDMORE, OWINGS & MERRILL**
Structural Engineers: **WEISKOPF & PICKWORTH**
General Contractor: **GEO. A. FULLER CO.**
Concrete Contractor:
CHARLES RIZZI CONSTRUCTION CO., INC.
Ready-mix 'Incor' Concrete:
JAMES A. NORTON, INC.
—all of New York City



The new bank's giant Mosler vault, on the main floor, flood-lighted at night, clearly visible to passers-by, contains 304 cu. yd. 'Incor' concrete.

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WASHINGTON OBSERVER

The outlook for military public works construction for the years ahead goes about like this, according to the Pentagon's top money man, Assistant Secretary of Defense McNeil.

Next two years will see more military spending than is scheduled for this year. This means more than $1.5 billion for fiscal 1956 which begins next July, and almost that much for fiscal 1957. There will be a drop to something less than $1 billion in fiscal 1958, as the best-informed experts see it at this time. The 1958 decline comes from the cumulative completion of the big airbase buildup that has been going on ever since Korea.

There's some hope that increased Army and Navy construction will help to offset at least part of the anticipated decline in Air Force construction.

•

Highway spokesmen in Congress are getting sensitive about Ike's new program. They feel that they have been carrying the ball for more and better highways for years. And now that the White House has taken up highways with a program that outstrips anything seriously proposed before, they feel that they should have been brought in much earlier in the planning.

Highway organizations, and the state governors have been called in—with another governors' committee meeting scheduled for next week.

The four key Republicans (Sens. Martin and Case, Reps. Dondero and McGregor) who put through the big highway bill this year will be at the meeting of the American Association of State Highway Officials in Seattle next week. The AASHO is expected to go on record favoring 100% federal payments for the interstate highway system, and continuation of federal aid for the rest of the federal-aid roads.

The association in effect will be backing the new $5 billion per year program—based on what is known about it at the present time. This is figured as a real big boost for Ike's idea.

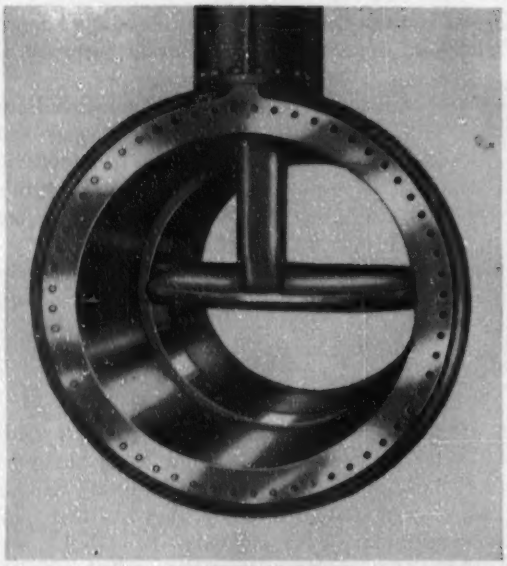
•

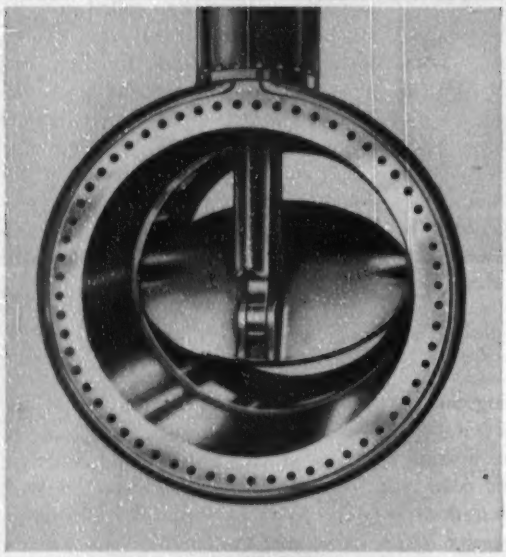
There's more construction coming out of the new "partnership" on power out West. Colorado co-ops and privately owned power companies are joining in planning generating and transmission facilities which neither could otherwse afford. Colorado-Ute Electric Assn. and Western Colorado Power Co. have just completed arrangements under which the co-op will apply for $9 million from REA to finance its part of a 20,000 kw steam plant and 150 mi of transmission lines to be integrated into the power company's system to cut overall costs for both. No site has been chosen yet for the plant.

Two other Colorado co-ops are considering similar projects. Tri-State Generation and Transmission Assn. is expected to borrow about $10.5 million and the southern group of REA borrowers in the area may request an additional $3 million for similar deals.

•

Reports on construction research sponsored by the government agencies are being stepped up by the Commerce Department. The October issue of its publication "U. S. Government Research Report," for instance, lists more than 30 reports on structural engineering alone. That includes projects done under government auspices at M.I.T., N.A.C.A., Brooklyn Polytech, Bureau of Standards, Navy Ordnance, and other universities and government agencies. Besides these reports there are others on building materials, highways and bridges, and other studies of interest to the building industry. The monthly summary of new reports—which is broken down subjectwise—is $6.00 a year from Commerce's Office of Technical Services, Washington 25, D. C.





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The CHAPMAN VALVE
MANUFACTURING COMPANY
Indian Orchard, Massachusetts

A Look into the Future:

Construction will Lead if Business Booms

If the nation's economy grows 40% bigger in the next 10 years—as some very important people are predicting—construction activity must grow even more, something like 53%.

Nobody can predict the future with accuracy. But planning of the U.S. economic future in Washington and elsewhere now has reached a stage that makes it important to the thinking of the nation's business leaders.

It was President Eisenhower who last week predicted the national economy would grow 40% in the next 10 years—from a gross national product today of about $356 billion a year to $500 billion in 1965. President Truman said almost the same thing in his last economic report to Congress.

The Eisenhower Administration is hard at work on plans to achieve the goal the President outlined. It will submit a set of recommendations to Congress early in the next session. According to Gabriel Hauge, the President's administrative assistant for economic affairs, these points are basic:

• **Public works**—The Administration plans to increase federal spending for some types of public works—such as highways, schools and hospitals. But it hopes to work out a way to avoid running these increased expenditures through the budget. A workable way to finance these projects as capital investments, to be written off over a period of years, is the solution the Administration is seeking.

• **Power**—The Administration hopes private industry will substantially increase its investment in power generating facilities—in partnership with the federal government, when practicable. The idea is that federal spending for power projects can be reduced while total investment is increasing if private industry and local governments play a bigger role. Several of these partnership power projects already are taking shape (see p. 17).

• **Housing**—Administration leaders again expect private industry to take the lead. The housing act passed by the last Congress was designed specifically to encourage private investment in housing, and the Administration is ready to take further steps, if needed.

• **Industry**—Administration policy has been to stimulate investment by private industry in plant and equipment through tax and other incentives.

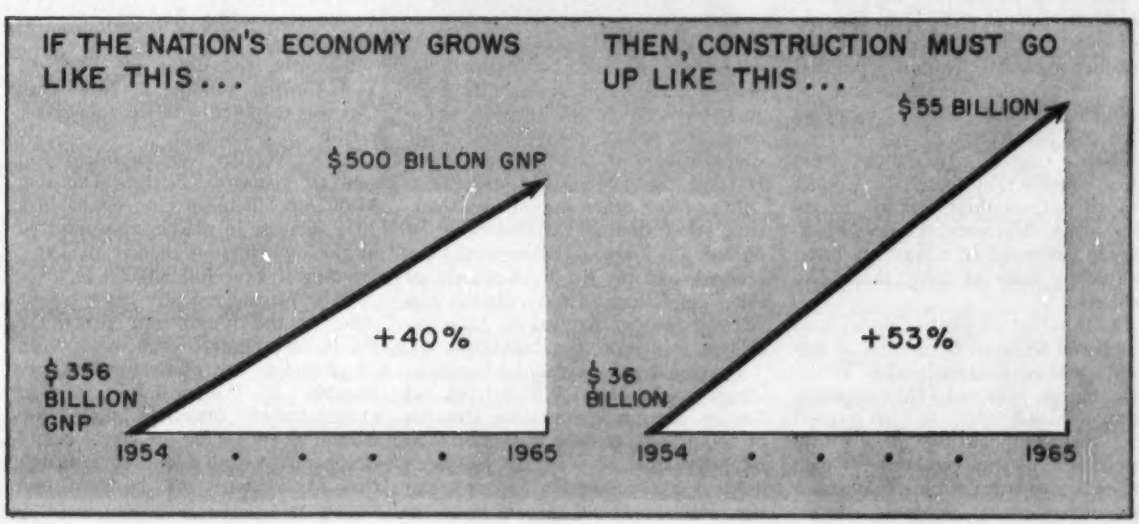
What these Administration policies may mean to construction during the next 10 years was outlined by Grover C. Ensley, staff director of the Joint Congressional Committee on the Economic Report. He predicted that housing, in 1965, would be running at an annual rate of 1.5 million starts. He said the nation's industry could be expected to invest something like 60% more in new plant and equipment than currently. And he indicated that spending on public works would run about twice the current rate.

Many government and private industry economists consider these goals entirely practical. They believe the construction industry must lead if the national economy is to move ahead vigorously during the next decade.

Last year, they say, construction accounted for 9.5% of the nation's gross national product. Construction is expected to take about 10% of GNP this year. But 30 years ago, when the U.S. was in the midst of the boom of the 1920s construction's share of GNP amounted to 12.5% or more over a period of several years.

They estimate that construction activity again will increase at a faster rate than GNP to provide the public works, additional plant capacity and housing upon which a period of economic expansion will be based.

Their estimate is that construction will be taking something like 11% of GNP by 1965. In a $500-billion national economy that would be an increase of 53% in construction business.



Plastics Will Give Buildings Curves, Color

Conference on use of plastics in building construction hears experts predict new materials will affect design

Frederick S. Merritt
Associate Editor

Plastics will make revolutionary changes in the appearance of future buildings, if the predictions of the plastics industry come true.

The men who make plastics foresee buildings covered with unbroken plastic skins in attractive color combinations. Many future buildings, they say, will have unusual shapes to take advantage of the structural properties of plastics.

One researcher even looked far into the future and saw the possibility of floating plastic farms, complete with buildings, on the equatorial oceans where climatic conditions encourage plant and animal growth.

Such views into the future keyed a conference in Washington, D. C., last week under the sponsorship of the Plastics Industry, Inc., the Manufacturing Chemists Assn., and the Building Research Advisory Board. About 500 architects, engineers and representatives of the plastics industry attended to explore the market for plastics in building construction.

• **Special breed**—From the outset, it was made clear that plastics have many properties that are desirable in building construction, but they also have other characteristics not possessed by ordinary building materials that might cause trouble. Direct substitution of plastics for conventional materials might prove unnecessarily costly, building men were warned.

There are about 16 chemical types of plastics of commercial importance, said E. B. Cooper of E. I. du Pont de Nemours & Co. Properties are determined both by chemical type—that is, by molecular structure—and by modifiers, such as fillers, reinforcing fibers and plasticizers.

Plastics differ significantly from other construction materials, Cooper pointed out, in their reaction to applied loads. All chemical types of plastics are composed of a jumbled, interconnecting mass of long, thread-like molecules.

Deformation of plastics under load is believed to occur by motion of segments of these long molecules. When the load is removed, the displaced segments slowly return to their original positions. Through this mechanism, he claimed, plastics can accommodate themselves to larger stresses than measurements of elastic constants suggest.

• **Great range**—Prof. A. H. Dietz, Massachusetts Institute of Technology, said the range of properties of plastics is as great as the range of properties of metals and is much greater than that of either concrete or timber. However, charts that he presented to show many of the characteristics of plastics that would be of interest to building designers appeared to indicate that thermoplastic materials behaved more like wood than any other common building material.

To some degree, plastics behave in an elastic manner, Prof. Dietz noted. Many, though, exhibit time-dependent plastic behavior, deformations depending not only on the load but on the rate at which it is applied and the length of time it is left in place. In addition, thermoplastics may creep under load if the temperature rises only slightly above normal room conditions.

Compared with traditional structural materials, Prof. Dietz said, the stiffness of plastics, as measured by modulus of elasticity, is generally low. Furthermore, it is noteworthy that the modulus varies with time and temperature. Thermal coefficient of expansion, in contrast, is high.

• **Stronger than most**—Where large sheets or large molded objects of high strength are required, the answer is usually found in laminates and reinforced plastics. These are materials in which plastics have been combined with sheet or fibrous materials to produce a composite that has properties unavailable in either constituent alone.

Their design involves problems similar in some respect to those of reinforced concrete, but more complex because properties of the composite may vary with direction. Some reinforced plastics may have tensile strength in one direction of about 100,000 psi.

Like most other nonmetalic materials, the thermal conductivity of plastics is low. Futhermore, as pointed out by R. N. Kennedy of the Dow Chemical Co., plastics can be expanded or foamed to form excellent insulation for buildings.

Expanded polystyrene, for example, which weighs only 1.3 to 2.0 pcf and has an average compressive strength of 3,000 psf, possess a transmission rate (K-factor) of 0.25. It has been used as a combination moisture-barrier insulation and plaster base in masonry block homes, as perimeter insulation for floor slabs on ground, as proof insulation and as an insulating core in concrete sandwich wall panels.

Plastics also are being used now as vapor seals, Kennedy said. Applications include use of polyethylene films from 2 to 6 mills thick and laminates of polyester film and aluminum.

Light-transmitting properties of some of the plastics are worthy of greater exploitation by building designers, contended both Berkson, president of the Alsynite Corporation of America, and O. L. Pierson, head of the plastics laboratory, Rohm & Haas Co. Emphasizing the shatter resistance of most plastics, they called attention to the growing use of these new materials for skylights, awnings, glazing and luminous ceilings.

• **Piping**—Joseph S. Whitaker, development engineer, Bakelite Co., reported that plastics are making headway in applications to piping. At the present time, light weight, corrosion resistance and flexibility appear to control their use. Tests and standardization work are under way to establish performance and dimensional standards for plastic pipe—estimated to be a $30-million market.

Raymond B. Seymour, president, Atlas Mineral Products Co., called attention also to the possibilities of plastics for ducts and conduit.

Guy G. Rothenstein, architectural consultant for Liquid Plastic Corp. and Progressive Industries, Inc., described applications of sprayed-on plastic skins on building exteriors. Such a surface has been applied to a 15-story concrete hotel in Tyler, Texas, eliminating flashings, copings and calking.

Recently, the dome of the New York Central building in New York City was re-roofed with the sprayed-on plastic.

R. K. Mueller, vice president and general manager, Plastics Division, Monsanto Chemical Co., predicted a 20% increase in plastics consumption in the construction market in 1954, reaching to over 400,000,000 lb.

"The plastics industry has a terrific stake in the trends and growth of the building industry," he said, "and we intend to contribute in every way possible. . . . We must be assured of outlets for our materials, and we are willing to spend for the research and development work necessary to match the requirements of builders and architects."

Low Bidder Loses

Government nullifies bid that attempted to limit contractor's obligation

Bidders on government contracts cannot set limits on the amount of work they will handle—above or below the estimated quantities—at unit prices quoted in their bids. The low bidder on a million-dollar section of irrigation canal in Nebraska recently lost the job by including such a restriction in his bid.

J. D. Armstrong Co., Inc., of Ames, Iowa, was low among eight bidders when the Reclamation Bureau opened bids Aug. 25 for construction of a section of the Franklin Canal between Riverton and Red Cloud, Neb., on the Bostwich Division of the Missouri River Basin project. The bid of the Armstrong firm, which was then in the final stages of completing the next canal section upstream, amounted to $912,049.

Two weeks ago, on advice of the Comptroller General, the job was awarded to the second bidder—the List and Clark Construction Co., of Kansas City, Mo.—at $971,459. Armstrong had made the mistake of putting into the low bid a stipulation limiting increases and decreases under the contract to 10%. This stipulation was considered a material exception to the specifications, sufficient to rule out the bid.

Said the Comptroller General in his opinion: ". . . The quoted stipulation in the bid . . . would result in limiting the company's liability with respect to the quantities it could be required to handle at the prices quoted in the bid. . . . The bid is not responsive to the invitation and the stipulation properly may not be waived by the government or deleted by the bidder subsequent to the opening of the bids. The bid of the company should therefore be disregarded as not conforming to the invitation."

Armstrong had explained, meanwhile, that the limiting language was never meant to be a contract stipulation. But the word "stipulation" had appeared in a company letter requesting withdrawal of the limitation statement, and that fact sealed the issue.

Walsh and Jansen Win 1955 Moles Awards

Thomas J. Walsh, chairman of Walsh Construction Co., and Carl Jansen, president of Dravo Corporation, this week were named winners of the 1955 Moles awards for service to construction. The Moles, New York association of heavy construction men, annually selects one member and one non-member for recognition. The awards will be made Feb. 2, 1955 at the Waldorf-Astoria Hotel in New York.

Member award winner, Mr. Walsh led his company from modest operations in the Middle West (headquarters still is Davenport, Iowa), to nationwide work of the largest kind. At present Walsh Construction Co. is in the joint venture for construction of air bases in Spain.

Mr. Jansen, the non-member award winner, rose through the construction ranks of Dravo to head the Pittsburgh company's diverse activities, which extend beyond heavy construction (wharves, tunnels, locks and dams) into shipbuilding, materials-handling equipment and space heating. Within the construction industry he is best known for labor committee activities in the Associated General Contractors of America. His company has one of the best safety programs in construction.

Don't Blame the Camera

This is a picture of smog. It's an irritating problem in Los Angeles. Air pollution research in the area indicates industry is not the worst offender. Probably the automobile makes the biggest contribution to the city's bad smog condition. Intensified efforts are under way to determine the causes of smog and clear it away. The Southern California Air Pollution Foundation, formed early this year by community leaders, expects to spend $1 million a year in an expanded research program.

Highway Contracts

Florida suit asks halt in letting of contracts for rest of this year

A court action has been started in Florida to halt the letting of new primary road contracts during the last two months of this year.

The suit was filed in Tallahassee by Louis Hill, president of the Tallahassee Chamber of Commerce. It is based on a claim that road contracts already awarded will saddle the state with a $4.5-million deficit by July 1, 1955.

Acting Governor C. E. Johns accused governor-elect Leroy Collings, who will take office in January, of instigating the suit. Johns said he was not worried about the outcome.

"No court is going to stop the road department from building much-needed roads for the traveling public," he said. He pointed out that the State Supreme Court in 1929 turned down an injunction brought against the road department under almost identical circumstances.

The suit was filed as an amendment to an earlier action by Hill which sought to stop the award of a $750,000 highway contract. The court temporarily enjoined the road department from proceeding with the project. This injunction is now before the State Supreme Court on appeal by the road department.

Florida's $100-million road program for 1954 is the most ambitious the state has ever undertaken.

AWWA Officer Calls for An Operation "Bootstrap"

Raymond J. Faust, executive secretary of the American Water Works Assn., told a meeting of the association's New Jersey section this week that the standards of the U. S. water industry need uplifting.

Faust said the salaries of water executives are far too low. He presented figures to show that electric utility executives receive salaries 2.75 times as large as water executives.

Return on investment for electric utilities, Faust said, is 2.3 times as great as for water utilities. "This is cited solely to establish the fact that publicly owned water utilities undervalue their services," he said.

The figures Faust presented were based on a relatively small, 12-city study. AWWA, long concerned that low salaries discourage engineers from seeking careers in water utilities, has conducted an employment survey of its members. Results of 6,500 returns now are being analyzed.

At Long Sault Rapids construction men are starting the job of . . .

Taming the Wild Waters of the St. Lawrence

Arthur J. Fox, Jr.
Associate Editor

Like Rip Van Winkle awakening from his 20-year sleep, a giant now stirs in the valley of the St. Lawrence. Soon he will waken completely and rise to full stature as one of the construction jobs of the century.

International development of the St. Lawrence for power and navigation—a giant even among the biggest of today's big construction jobs—has lain dormant so long that inhabitants of the valley don't yet fully realize what is in their midst.

Full impact of this giant's presence has not been felt in towns along the river. The man on the street is not fully aware of it. But its presence is everywhere.

You feel it first even before leaving the train. The lady across the breakfast table in the dining car expresses surprise at learning you are headed for Massena, N. Y., (pop. 14,000) and that your business is not with Alcoa. There's something else?

Leon Pranshaw, veteran taxi driver in Massena for 31 years, knows there's something else. Somehow, he sizes you up and asks if you're looking for the engineers. He knows where they are, he has already taken many fares there and will take a lot more in the coming months.

Then there are the two fellows you find already seated in the back seat of Leon's taxi. From the look of them and their scant and rugged luggage as they pile out at a down-at-the-heels hotel not far from the station, they're construction stiffs. There's no question about it, they couldn't be anything else.

Outside the new frame building on Maple Street, office of consultants to the New York State Power Authority on the project, you overhear this brief conversation:

"You looking for work?"

"Yep."

"Ever work in the woods?"

"Yep."

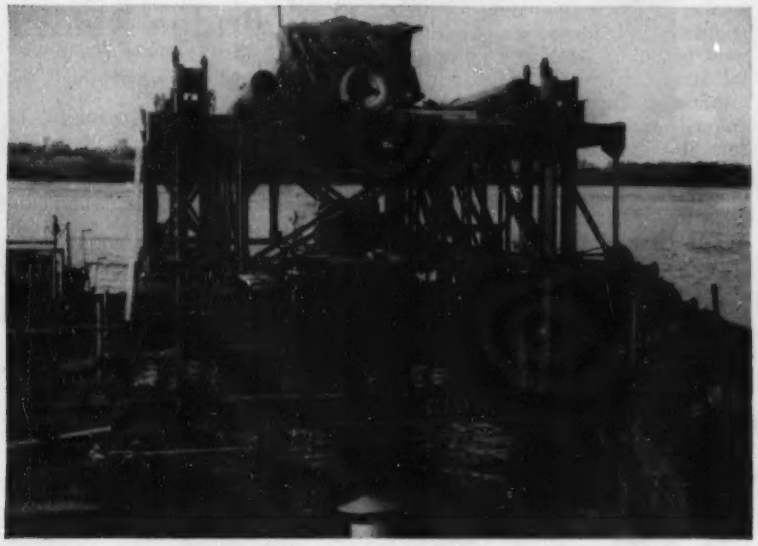
"Give me your name and a phone where I can reach you. I'm fixin' to bid on some clearing work here. I'll need men who can work in the woods."

• **Growing pains evident**—The project is shaping up—slowly, but surely. Uhl, Hall & Rich, the Power Authority's consultants, have forces in the field gathering design data which their Boston office will use in contract drawings. But while they work, they are still organizing.

In the Maple Street office you can sense the birth pains of a field organization. Frank Creedon, until recently director of installations for the Defense Department in Washington, D. C., has just moved in to take charge for the firm. There is moving of desks and shifting of belongings as a resident consultant force, that did include Sanderson & Porter as well as Uhl, Hall & Rich during earlier phases, is shaking down to a one-firm organization—while also building up in size.

The Power Authority's big, soft-spoken resident engineer has been in the area only a few weeks. He is William H. Latham, who for 20 years was

FOR ONTARIO, the Hydro Commission's Bill Hogg is field engineer.



THE THING, as rivermen call it, floats peacefully in Robinson Bay. It is ready to go to work on Long Sault Dam.

in New York City's Department of Parks.

You find his temporary office in an oil company's pre-fab building on the highway northwest of Massena. It is in sight of the river, but will move downstream to a spot nearer the work on Long Sault Dam.

His new secretary is still scrounging Scotch tape and staples to get into business, while her boss works to familiarize himself with the area and those already at work in it.

• **Channel work started**—The Dravo Corp., which took the Power Authority's first contract—$1.2 million worth of cellular steel cofferdams, diversion channel, dewatering and excavation for the first stage of Long Sault Dam (ENR Aug. 12, p. 21)—is hard at it, despite the mud of an excessively wet season. Ray Hilte, in charge of work for Dravo, had to put off starting his first of eight sheetpile cells for a while, so slick was the river bank with mud. But his ferry to Long Sault Island had put draglines and dozers across, where they are well into the digging of the diversion channel through the thin neck of the island.

FOR NEW YORK, Power Authority's resident engineer is W. H. Latham.

Below Long Sault in Robinson Bay, Frederick Snare Corp. has a floating drill rig, made up of pontoons, steel frame and winches. "The Thing," as it was dubbed by wondering rivermen during its journey to the site, will be moved into the swift current and held there as a drill platform for rock exploration along the center line of Long Sault Dam.

Otherwise, you don't yet see much of the giant St. Lawrence project on the New York side.

• **Real estate boom**—It's not too surprising that the Massena taxi driver, taking you across to Cornwall, Ont., has little concept of what is to come. His only indication of what's brewing is the price of local real estate.

He shows you a small farm on which some big industry supposedly has made a $100,000 offer. He shows you the very small piece of farm land he and a friend once wanted for development of a golf driving range. Present price: $15,000.

You see the stakes where Gunnison Homes will put up 160 houses on which the Power Authority has guaranteed a 12-year rental, in order to make housing available to supervisory people moving into the area. You see trailer sales lots; you can see at least one trailer park growing.

And you can appreciate that the biggest part of the work now going on is the acquisition of some 2,000 parcels of land needed for right-of-way and for flooding. This job is being done by New York State's Department of Public Works, which has had much experience in land acquisition for highway projects.

• **Across the border**—In Ontario, the story is the same. Though Ontario Hydro has been on the job there longer, the giant construction is but barely stirring.

Upstream from the powerhouse site, a few thousand cubic yards of cofferdam rock have been dumped in the river. Downstream, a dredge is preparing the river bottom for a cofferdam.

The Hydro has an administration building started on the north bank of the Cornwall Canal, and when winter shuts the canal down, a cut-and-cover tunnel under it will be built for better access to the power plant site on the river.

You see Gordon Mitchell, director of the St. Lawrence power project for Ontario Hydro, on one of his frequent visits to the work. And Bill Hogg, field engineer, is on the job. But not much is doing. In fact, Bill Hogg, you find, has just allowed himself the luxury of a brief vacation—probably the last one he will take for some time.

Cornwall, Ont., (pop., 17,000) is distinguished from Massena principally by its hotel, the Cornwallis. (Massena's is the White, and it is over a bank.)

In the Cornwallis, the desk clerk says they've felt the coming of the power project for the past two months. Their 30-room extension under way will take 8 to 10 months to complete, and it's needed now.

In the small, colorless lobby, the comings and goings of men with mud on their shoes make the place somehow reminiscent of Paducah's Irvin Cobb Hotel in the days of big AEC and TVA construction in that area. The Cornwallis hardly compares with the Irvin Cobb; it's the atmosphere that is the same.

And as you leave Cornwall on the Montreal bus, you overhear the driver pass along this bit of well-meant misinformation.

"Understand the Hydro took on 500 men yesterday, and that the engineers are to arrive tomorrow."

The engineers have already arrived. The men are coming. The giant construction is awakening.

A New Fanny Mae

It will continue its job, bringing in private funds to replace federal assets

The government agency that backs up the market for FHA and VA home mortgages began a new life this week. On Nov. 1, the re-chartered Federal National Mortgage Assn., usually known as Fanny Mae, started functioning under the new rules laid down in the Housing Act of 1954.

Although Fanny Mae continues as a government corporation, its new charter is designed to bring gradual substitution of private funds for federal money.

Under the charter, Fanny Mae continues to provide a secondary market for FHA and VA mortgages. But sellers to Fanny Mae will be required to buy stock in the corporation equal to 3% of the unpaid balance of the paper they sell—and may have to pay more if the agency so decides. That would gradually replace the $21-million capital provided by the Treasury. Fanny Mae also has about $70 million set aside as surplus funds and loss reserves.

• **FNMA Debentures**—Cushioned by the capital funds, Fanny Mae is authorized to sell debentures to the public and to the Treasury to finance its purchases of mortgages and also to pay off its present debt to the Treasury. It now owes the Treasury about $2.4 billion, advanced to buy mortgages which the agency still holds. It also is selling off some of its mortgages to private investors, and this is another source of funds to acquire new mortgages and also to repay the advance made by the Treasury.

In case the debentures do not find a ready market in Wall Street, Fanny Mae can still start in business as a secondary mortgage market. For the Treasury is authorized to buy up to $1 billion of these obligations.

In addition to providing a secondary market for mortgages held by lending institutions, Fanny Mae at the President's direction will support special housing programs—such as the new program of low-cost homes for families displaced by slum clearance. It can make purchases and advance commitments up to $200 million.

Kansas Industry Group Asks Split-up of Big VA Contract

A recommendation that the $15-million construction contract for Winter Veterans Hospital at Topeka, Kans., be divided into a number of smaller contracts, providing for more competitive bidding, was made last week by the industrial council of Kansas State Chamber of Commerce.

Maurice Fager, chairman of the council, said that the division of the total hospital construction contract into several smaller contracts would benefit Kansas contractors and the labor force in Kansas.

The Veterans Administration currently is contemplating award of the $15-million contract to one construction contractor. Of a total appropriation of $21 million for the Winter Hospital, approximately $15 million is for construction.

"That means this big contract would not go to a Kansas contractor but to a big out-of-state contractor," Fager said. He said there is no Kansas contractor with sufficient financial resources to handle the total contract alone.

"It is our belief that the federal government could save much money by breaking the multi-million-dollar contract into smaller ones, perhaps on an individual building basis," Fager said.

"This procedure would result in more competitive bidding on the contracts and would give Kansas contractors an opportunity to compete."

Mr. Fager said there are probably only 25 construction contractors in the United States with enough resources to bid on the $15-million contract.

B. A. Etcheverry, Irrigation Authority, Is Dead at 73

Bernard A. Etcheverry, 73, widely known authority on irrigation and vice chairman of California's Water Resources Board, died in New Haven, Conn., Oct. 26.

A native of San Diego, Mr. Etcheverry was a member of the faculty of the University of California from 1905 until his retirement in 1951. He served as chairman of the University's Department of Irrigation Engineering from 1924.

Mr. Etcheverry had served on the California Water Resources Board since it was set up in 1946 and was named vice chairman in 1950. At various times in his busy career, he served as consultant to the Bureau of Reclamation, the Department of Agriculture and state agencies concerned with reclamation and water policies. His consulting work also included several missions abroad.

Among the many books he authored on the subject of irrigation engineering were "Irrigation Practice and Engineering" and "Land Drainage and Flood Protection."

New Bridge Rules

Revised navigational requirements drafted by federal agencies

Recommendations for lower clearances on bridges upstream from tidewater—offering prospects of less costly bridge construction—will be contained in revised navigational requirements now being worked out by federal agencies.

A Commerce Department report is serving as a basis for final discussions by several federal agencies, whose views will be submitted to the Hoover Commission before the end of the year—by Dec. 15, if possible.

A special study of the bridge clearance problem, under Paul F. Royster, assistant to the Commerce Undersecretary for Transportation, has been in progress since 1952. The White House that year authorized the Secretary of Commerce to undertake the study in cooperation with other federal agencies. Walter Kurylo, of the Bureau of Public Roads, who conceived the study, was detailed to handle the Commerce Department project under Royster.

These two men and representatives of the other federal agencies are redrafting a preliminary report that was put together last Aug. 15 at the request of the Hoover Commission's task force on water resources and power. This Commerce Department draft, though based on data that was obtained from many sources including other federal agencies, state highway departments and railroads, did not carry the approval of any other federal agency.

But now all pertinent agencies are having their say. Besides BPR and Commerce, the agencies include the Corps of Engineers, the Army Transportation Corps, the Navy, the Coast Guard, the Coast and Geodetic Survey, the Maritime Administration, and TVA. Their decisions are backed up by their own information from state highway departments and from 56 railroads.

As recently as two weeks ago, the Corps of Engineers opposed the report as originally drafted. But conferences with Commerce officials soon ironed out the differences and finally made the report acceptable to the Army Engineers.

Basic purpose of the report is to recommend bridge requirements that will achieve a better balance between the traffic demands and relative importance of land and water transportation at each bridge location.

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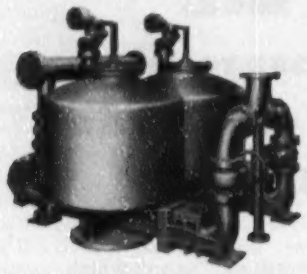

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CITY BY CITY

Diversion Delay

Denver—Denver's $75-million plan to bring Blue River water through the Rockies to its metropolitan area hit a snag when the State Supreme Court ruled against it 4-3. The project—a 23-mi tunnel—would divert 1,600 cfs from the river, located on Colorado's western slope, over to the city on the eastern side.

The court held that the city's priority on Blue River water dated from 1946 rather than from 1921. The Denver Water Board contended it had drafted plans in 1921 for the water diversion project and sought to establish its priority in that year.

Under Colorado law domestic water users establish priority on unclaimed water when construction is started on facilities to use the water. Since Denver started work on a pilot tunnel in 1946, the court ruled that the city was entitled to 788 cfs on the basis of a priority for that year.

Denver already has announced plans to seek a rehearing on the case. Colorado Springs, site of the proposed Air Force Academy 60 mi south of Denver, will join in the petition since it had planned to obtain 15,000 acre-ft annually from Blue River.

Opposing Denver's suit for the water are the cities on the western slope mainly Grand Junction. Grand Junction claims it will need the water for development of its own area, particularly for using vast oil shale deposits.

Denver water officials claim that present supplies are sufficient to allow expansion of the metropolitan area at the current rate only until 1963 (ENR Dec. 21, 1953, p. 25). The department served 579,000 water users on July 1 of this year—and the limit with present supplies is reported to be 600,000.

One result of the court's decision already foreshadows a halt in expansion. A local contractor announced that his 6,000 home development project due to go up just north of Denver —will be canceled if the ruling stands.

Due for Development

Ft. Meade, Md.—The largest building project ever undertaken in Maryland's Anne Arundel County—a $75,-000,000 commercial and residential development—will go up on some 1,200 acres near Ft. Meade.

The development, to be located about 1½ mi north of the military reservation, will include (1) a $7.5-million shopping center containing 25 stores; (2) 7,600 single-family homes; (3) 2,500 apartment units.

There already is a shortage of homes and business establishments in the Army post area. County officials decided to push plans for the development project when they learned that the National Security Agency—and thus an influx of new residents—will be moved to the fort.

Airport Argument

Oakland—The proposed $11.5-million expansion of Oakland International Airport, which has been drawing fire from Alameda and San Francisco, faces two new developments:

- The Port of Oakland has filed a condemnation suit against Alameda to obtain 68 acres of submerged land needed for a 8,600-ft runway that will jut a mile into San Francisco Bay. Alameda recently turned down the Port's offer to trade 68 acres of land on the south shore of Bay Farm Island for the needed plot. Reason for Alameda's opposition is that it would lose a $50-million residential development planned for 880 acres lying in the approach zone of the airport.
- San Francisco has modified its strong stand against the expansion. The city has been protesting that the runway would be too close to the proposed southern toll crossing for safety and that dredging required for reclaiming the submerged land would interfere with the crossing.

Both objections have been referred to the Civil Aeronautics Administration and the state division of bay toll crossings.

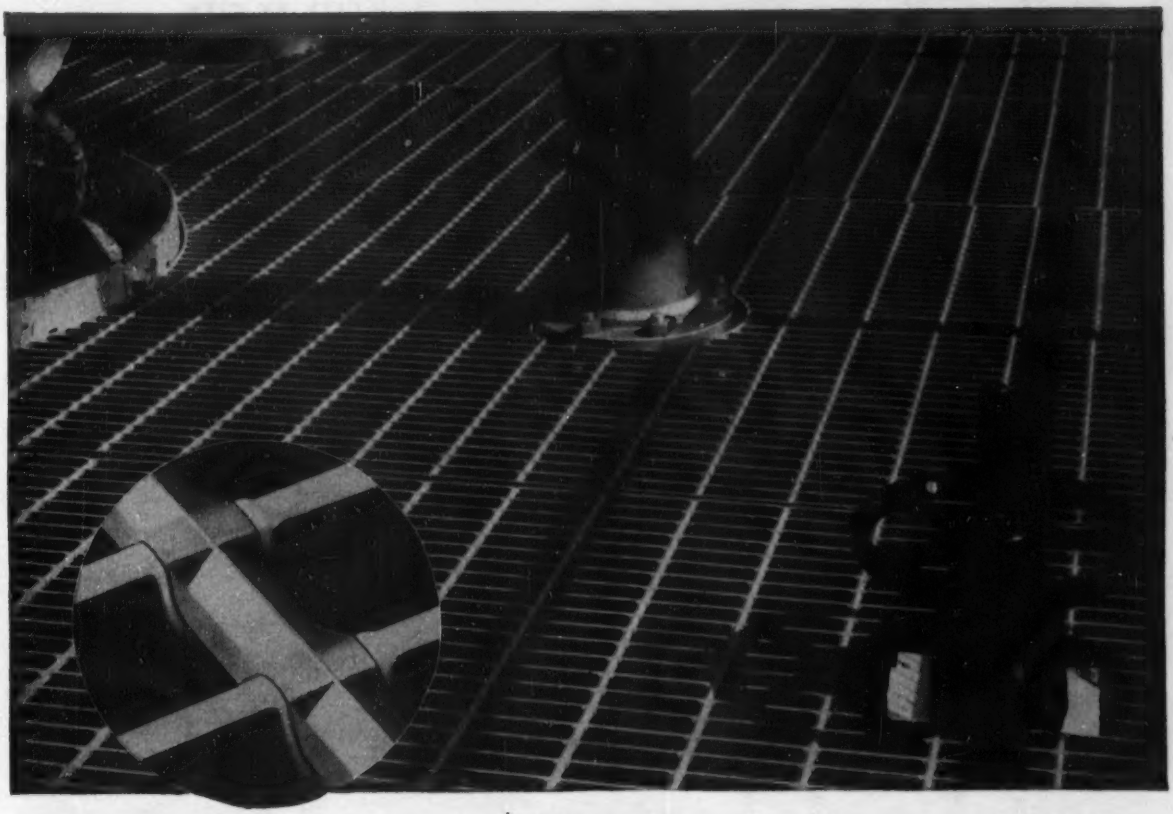
Meanwhile, the deadline for filing any protests against the airport expansion on the basis of its being a potential navigation hazard has been extended to Nov. 17 by the Army Engineers' San Francisco District.

Public Works Push

Los Angeles—Mayor Norris Poulson's campaign to speed up Los Angeles public works by employing private engineering firms has won one victory. The city council has authorized the Board of Public Works to hire additional private firms to complete plans for a $79-million storm drain project.

Under the new authorization about 15 contracts will be awarded. So far, 53 of the project's completed plans have been done by city engineers and 8 by private firms.

(*Continued on page 30*)



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CITY BY CITY

Code Revision

Milwaukee—The Board of Zoning Appeals has approved changes in code requirements that would permit the erection of the largest apartment building in Wisconsin—a 14-story, 400-unit structure.

Under tentative plans filed with the appeals board, the entire first floor of the proposed building would be utilized for parking. There would be 11 full floors of dwelling units above the ground floor, with the top three floors set back from the base.

Pollution Problem

San Diego—To halt pollution of San Diego Bay by sewage dischargers, the San Diego Regional Water Pollution Control Board has voted to use its full authority—including punitive legal action if necessary.

One of the board's first steps will be to prepare requirements that would limit the discharge of waste into the bay. If these requirements are adopted, the board could cite offenders and take the case to court.

The board's decision to take a firm stand came after a staff report revealed that bay pollution is rapidly increasing. Almost all of the bay area used for commercial, Navy or recreational activities now has a coliform density of more than 10 per milliliter.

The city itself reportedly is responsible for 90% of the bacteriological waste loadings discharged into the bay. Chula Vista and Navy ships in harbor each account for 5%.

The Full Treatment

Seattle—Is complete sewage treatment cheaper in the long run? After tangling over this question for 13 months, Seattle's city engineer and city council have agreed to redesign the proposed Alki Point sewage disposal plant to provide primary treatment.

Suggested modifications on plant design will provide the primary treatment—yet slice some $150,000 from the former cost estimate of $770,000. Elimination of a sludge outfall and a salt-water intake (both called for in original plans but not necessary with redesigning) will provide funds for a digester.

The Alki Point project is the first of four treatment plants scheduled to be built under a $25-million sewage disposal program aproved back in 1952 (ENR July 2, 1953, p. 44). Since then the council has been advocating a less expensive plant, with the digester and other facilities to be added later.

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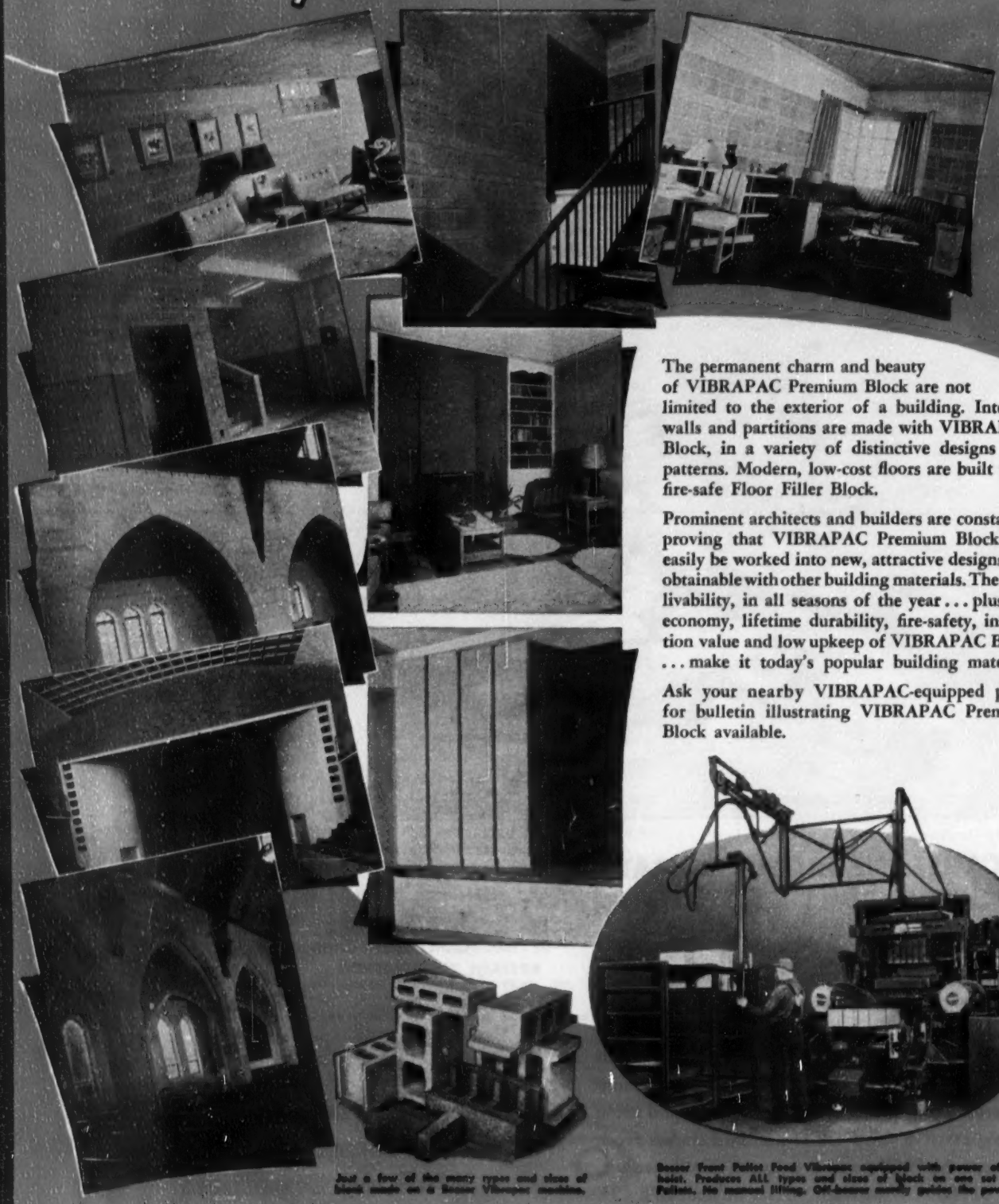

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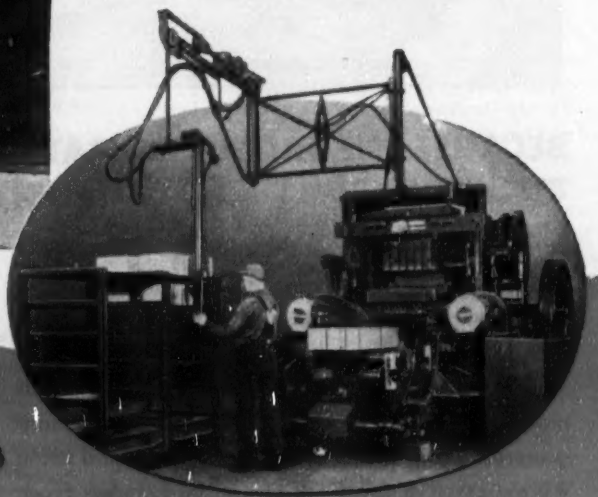

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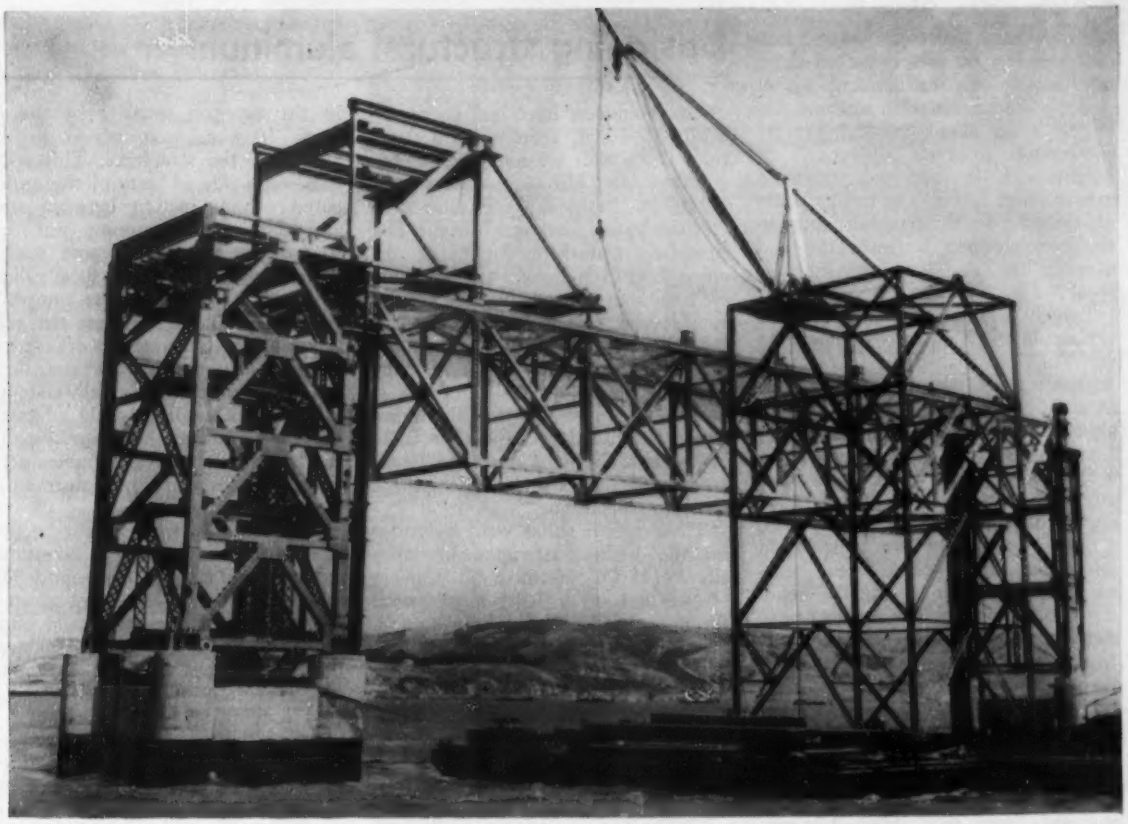


STEEL TRUSS SPAN for California bridge is assembled in place on aluminum erection span. Derrick barge services the steel work; later spans will be erected by a traveler riding the steel work. Aluminum span is supported by timber bents bolted to the towers.

Aluminum spans, 280 ft long, speed bridge truss erection

An innovation in bridge building practice has been developed by contractors who are erecting the superstructure of the Richmond-San Rafael Bridge across the north arm of San Francisco Bay (ENR March 4, 1954, p. 30).

Steel truss spans, 289 ft long, are being erected in place on work platforms formed by 280-ft long aluminum truss spans. The procedure promises greater safety in deep-water operations and speed at least equal to conventional methods.

Traditionally, two methods of truss span erection have been followed: Assembly in place on some sort of falsework platform, or pre-assembly and floating into position.

Falsework has been constructed in some instances on temporary pile bents, but for Richmond-San Rafael, pile lengths would have to be too great for this procedure to be economical. In other cases, steel trusses to be used elsewhere on the job have been used temporarily as erection spans. This was ruled out by Judson-Pacific-Murphy Corp., and Peter Kiewit Sons Co., contractors, because of the weight of the steel spans—in excess of 400 tons.

Floating the spans into place was also ruled out: the steel truss assemblies are too heavy for economical hoisting operations; floating in at a high level was considered too risky since some spans are as much as 170 ft above mean sea level, and the site is subject to treacherous tidal currents and high winds.

However, eight smaller spans—of the total of 36 truss spans—are to be floated in place. These are located near the shore—seven on the Richmond side and one on the San Rafael side—where land masses provide wind and tide protection. They will be set at a relatively low elevation—so low that the aluminum erection spans would have been partially submerged. Electrolytic corrosion of the aluminum in salt water was a contributing factor in the decision to float the low level spans.

Credit for developing the aluminum erection-span method belongs to J. Philip Murphy, president of J P-M, which is acting as job sponsor for the joint venture.

Advantages attributed to the method by Murphy are: A solid working surface is made available; the 117-ton weight of the aluminum spans can be hoisted into position with equipment required for other phases of the erection work; no heavy spans are transported at high level with danger of tipping. And the procedure eliminates the use as falsework of permanent steel intended for use elsewhere on the job.

• **Two spans used**—Two aluminum erection spans were fabricated, at a cost of $150,000 each.

A span is made up of two trusses framed together by top and bottom lateral systems. Truss depth is 36 ft, center-to-center of top and bottom chords. The trusses are spaced on 42-ft centers which is the same as the permanent steel spans. Erection truss panels are 36 ft wide—identical with the steel truss panel width.

The erection spans are supported on timber bents resting on the concrete bridge piers. The bents provide vertical support only; they are clamped

(*Continued on page 34*)

to the bridge towers for lateral support and rest on pin-connected shoes to eliminate bending moment.

Bents are fabricated in sections, the largest being about 30 ft high. By combining sections, a variety of heights can be obtained up to a maximum of 150 ft. The timber bents are sloped from the base that rests on the concrete pier to meet the end shoes of the 280-ft aluminum erection spans.

Largely due to the slope of the timber bents, they are designed to carry no lateral load. Such loads are transferred to the steel bents by shear lock beams at the level of the aluminum truss upper chord.

• **Start at a fixed pier**—Truss span erection starts at one of five fixed anchor piers and moves, span by span, to one of the split tower expansion joint piers. Intermediate steel bents are flexible enough to take the bending necessary to pull them into position to pin to the permanent steel trusses. Making this connection is, perhaps, the trickiest part of the erection sequence, since it requires both a vertical movement of the truss and a horizontal movement of the bent.

Complicating the erection procedure is the fact that both the steel and aluminum spans move horizontally and vertically between the unloaded condition and the loaded condition. For example, the bottom chord of steel trusses are longer when supporting the dead weight of the steel trusses than when being supported by the aluminum erection span. There is also a difference in area of the steel spans depending on location in the series of spans.

• **Erection sequence**—First step in the actual erection sequence is to position the supporting bents.

Next step is to lift the aluminum span into position. For the first span of a series, this is accomplished by floating equipment. For subsequent spans, lifting power at one end is provided by a traveler that rides on the top floor beams of the erected steel spans. Floating equipment lifts the other end.

The aluminum erection span must be lifted at an angle with the center line of the bridge in order to clear the timber bents. After it is above the bents, the derrick barge swings the span over its seat.

To facilitate the setting of the aluminum truss, the end shoes have conical bottoms that engage similar sockets in the seat. The cones allow a 3-in. leeway in entering the seat. Thus, precise accuracy in setting the aluminum erection span is not required as the nesting action of the cones force the assembly into proper position.

In addition to the cone-shaped seats, a toggle device that can move the end member 5 in. in either direction is at one end of the erection span. This toggle is adjusted until the span shoes fit into the seats. But some bents are such that the 5-in. leeway is not sufficient. These towers are flexible enough to be pulled with cables to provide the additional movement. After the erection span is seated, the erection span toggles are adjusted to the neutral position so they can be used later in seating the steel span.

• **Steel erection**—Normal procedure in steel erection will be to erect the first few members in a series of spans by use of a floating derrick. Then a traveler equipped with two 35-ton capacity stiff-leg derricks will be mounted on the erected steel to hoist the remaining steel. The traveler—designed for the job by American Hoist and Derrick Co.—moves on skid beams mounted on the upper floor beams of the steel truss system.

However, for the first steel span erected on the aluminum falsework, all handling was accomplished by a floating derrick as the work could be done faster that way. But when more steel erection is under way, the floating derrick will be needed for other tasks and truss steel will be almost entirely placed by the traveler.

By the time all the steel is in place, more than 90% of the bottom chord rivets have been driven. All other joints are bolted and pinned with 50% to 75% of the holes filled depending on the importance of the connection.

Designing structural aluminum

Few engineers have had an opportunity to design an aluminum structure. Procedures are not much different than steel but controlling factors differ. In designing the aluminum erection spans, Earl and Wright, San Francisco consulting engineers, decided that, even though the spans are for temporary construction use, design considerations should be nearly the same as for a first class permanent structure. They followed closely the "Specifications For Heavy Duty Structures of High-Strength Aluminum Alloy" published as Paper No. 2532 in Volume 117 (1952) of the Transactions of the American Society of Civil Engineers.

These specifications were drawn up for the highest strength aluminum alloy (14S-T6), formed by alloying copper and other light metals with aluminum followed by heat-treating. According to these specs, the following factors in structural aluminum design are important.

Basic allowable tensile working stress is 22,000 psi based on minimum yield strength of 53,000 psi and minimum tensile strength of 60,000 psi.

Modulus of elasticity in tension and compression is 10,600,000 psi (this compares with 30,000,000 psi for steel).

Coefficient of expansion is 0.000012 per degree (double the 0.0000065 per degree F. of steel).

Weight is .10 pci (steel is .28 pci).

Rivet design in aluminum structures differs from steel practice. Steel rather than aluminum rivets were used in the erection spans even though some 10 tons were added to the weight of the structures. This selection was made in spite of the anticipated galvanic action between steel and aluminum. Reasoning was that steel rivets are much more readily available and have greater shear values: 9,020 lb for $\frac{7}{8}$-in. rivets as compared with 6,240 lb for the same size cold driven aluminum rivets. In driving hot rivets in aluminum structures, heat transference must be carefully watched as too much heating would adversely affect the temper of the alloy. Finally, stitch rivets in built-up members must be spaced closer in aluminum than in steel.

Aluminum structures must be protected by paint. Alloying aluminum reduces resistance to corrosion. The fabricated members are first given a thorough cleaning with a mild phosphoric acid solution. This is followed by a prime coat of zinc chromate. Finish coat for the erection spans is an aluminum pigmented paint.

All of the aluminum was provided by the Aluminum Company of America whose engineers assisted in design of the erection spans. The heavier structural channels and angles for the erection spans came from Alcoa's Massena, N. Y., mill—the only mill in the world rolling heavy aluminum shapes. And as demand for heavy aluminum shapes is not very great, all of the heavier members were of necessity rolled to order. Pricing schedule is such that the smaller the order of a specific size, the greater per pound cost. Result is that use of standard member sizes reduces costs.

Next follow the intricate operations of making the pin connection and swinging the steel span—that is permitting it to carry its own weight. The steel truss is moved vertically in these two operations by jacks provided between the aluminum and steel spans at three of the seven panel points. These jacks are 150-ton capacity, are mounted on rollers permitting 6-in. horizontal movement, and have an 18-in. rise.

Horizontal adjustment for making the pin connection is accomplished by the toggles on the aluminum erection span. Maximum possible movement is plus or minus 5 in. The toggles working through the wooden bents that are bolted to the steel towers actually pull or push the tower into proper position.

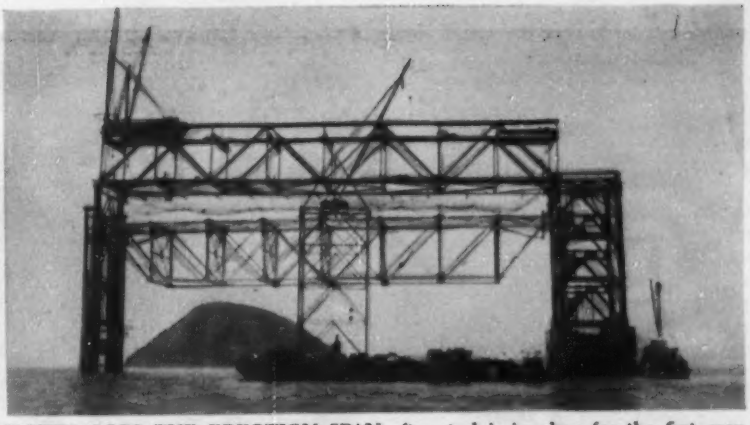
• **Swinging the span**—After the pin connection is made, the toggle is broken and control of the steel bent is taken over by the steel span. Then the jacks are slowly relieved resulting in the swinging of the steel span. In the process of relieving the jacks, the erection span moves up 11½ in. at mid point to its unloaded camber. The upward movement of the aluminum span is accompanied by a top chord shortening of 3 in. And as load is picked up by the steel span, it deflects downward 2 in. at mid point.

Now the stage is set for removing the erection span. First, safety nets are attached to the steel span for riveting work to follow. Then the connections at each end of the erection span are unbolted and the span is hoisted by the traveler and secured to the steel span. After the wooden bent supports are removed the erection span is slowly lowered by the traveler onto an awaiting barge. One traveler hoist lowers one end of the span and the other hoist working through a sheave arrangement lowers the other end. In this procedure the hoists control the movement by braking action.

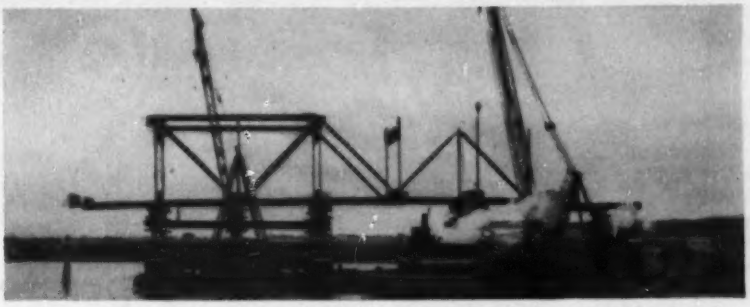
Aside from the traveler, the most important item of equipment constructed for the steel work is a 75-ton capacity floating derrick—the "Judy Ann." Mounted on a 160x50-ft barge, the derrick has a 100-ton steam hoist. A tower 51 by 48 ft in plan is mounted on the barge. For initial work, the tower is 108 ft high. Later on it will be extended to 130-ft height. Mounted on the tower is a stiff-leg derrick with 125-ft boom. The entire assembly can lift 75 tons at a 50-ft radius. In addition to the 36 truss spans discussed in the foregoing, the $21 million superstructure contract includes thirty-six 100-ft long girder spans and two 1,070-ft cantilever spans each with 537-ft anchor arms. All girder spans are in place and the concrete deck on them is well advanced. No cantilever steel has been erected but some temporary falsework piers have been constructed.

• **Credits**—Design and construction of the Richmond-San Rafael Bridge is under the jurisdiction of the Division of Bay Toll Crossings of the California Department of Public Works for which Norman C. Raab is projects engineer. Ben Balala is resident engineer for the state on the bridge construction and Howard Whitty is resident engineer specifically responsible for steel erection.

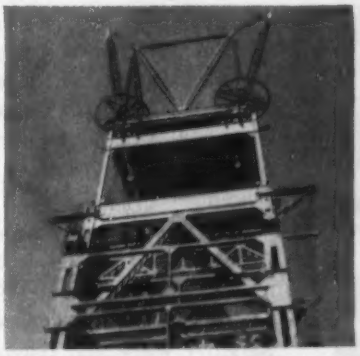
For the Judson Pacific-Murphy Corp. and Peter Kiewit Sons Co., J. Philip Murphy is project sponsor, Francis J. Murphy is project manager, H. W. "Bill" Ziegler is erection superintendent, R. A. Chisholm is yard superintendent and W. E. Dreusike is office engineer. Earl and Wright, San Francisco consulting engineers, served as consulting engineers for the joint venture.



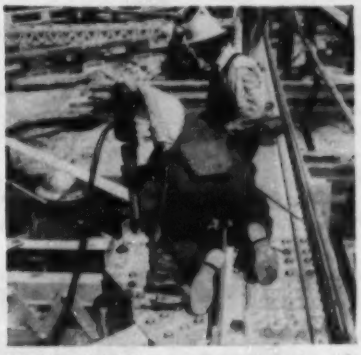
DOWN GOES THE ERECTION SPAN after steel is in place for the first span. Traveler mounted on the steel span (left) controls the movement with its two 35-ton hoists. Barge will move span to new location.



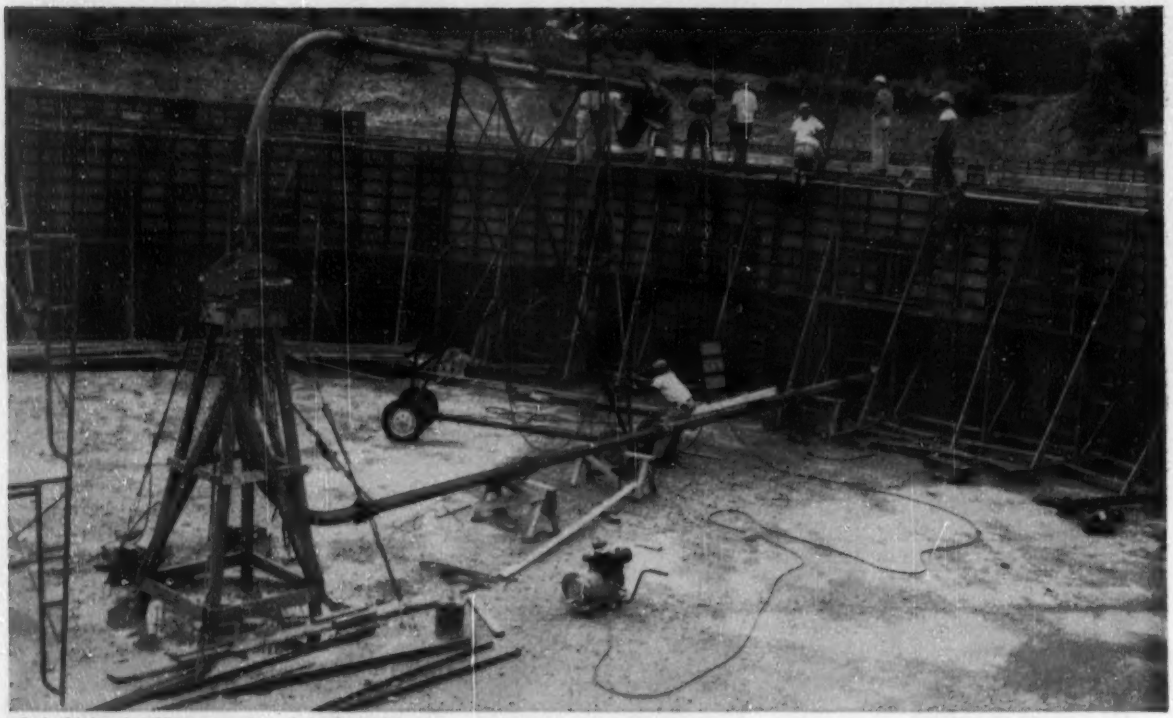
BARGE SUPPORTS STEEL WORK for one of the eight spans to be floated in place. These spans are nearer shore and are lower than the 28 spans to be built on the aluminum falsework system.



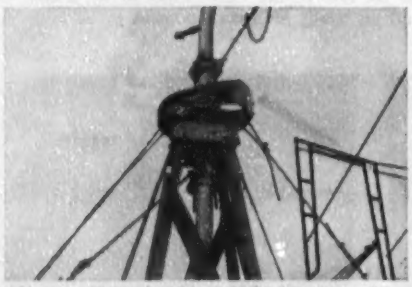
DOUBLE boomed traveler mounted on top of steel span will handle most erection. Timber bent to support erection span is in place in front of tower.



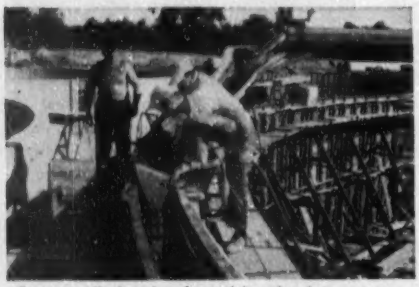
STEEL RIVETS make joints for the aluminum trusses. Steel rather than aluminum rivets were used because of higher shear strength and greater availability.



Swivel joint simplifies concreting of circular tanks. Swivel installed in a riser pipe (center). Pipeline swings horizontally over entire tank circumference.



Close-up photo showing swivel joint construction



Concrete discharging from 6-in. pipe into conventional chute. Average length of pipeline was 300 ft.

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Stress losses in prestressed concrete

They should be nearly the same for all types of steel tendons —but designers may not get the prestress expected when they specify a percentage stress loss for shrinkage and creep

Fred E. Koebel
Vice President & Chief Engineer
Prestressing, Inc.
San Antonio, Texas

Recent competitive bid lettings for prestressed concrete work show up a fallacy in the method of specifying required prestressing forces and stress-loss factors. When the specifications set a fixed percentage of the initial prestressing force to account for the loss due to creep and shrinkage, there is danger that members will be underdesigned.

For example, on a recent job, an initial prestressing force of 365,000 lb was specified for 65-ft girders, with a loss factor of 15% to account for dimensional changes in the concrete due to creep and shrinkage. Hence, the designers intended to have a final force of 310,000 lb acting on each girder. An initial working unit stress 65% of the ultimate strength also was specified.

Bids were taken for designs with various post-tensioning methods. These designs called for different amounts of steel, as shown in Table I.

A sufficient number of wires or bars was used to give the required initial prestressing force. In addition, stress losses due to elastic shortening, hardware seating, etc., were accounted for. The final stresses, after losses, are given in Table II.

This table shows that with the fixed-percentage loss, the three materials are assumed to have lost different amounts of stress. Transposed to unit strain, Material A, with a modulus of elasticity of 28,000,000, lost 0.000785 in. per in.; Material B, with a modulus of elasticity of 28,000,000, 0.00084 in. per in.; and Material C, with a modulus of elasticity of 25,000,000, lost 0.00056 in. per in. Even if relaxation of the steel is taken into account, a wide discrepancy shows up in the strain loss allowed for shrinkage and creep in the concrete for the three methods. Yet, the strain loss should be the same for all three, since the total prestressing force is the same.

Since the strains differ, the concrete may be getting too much or too little prestress.

• Stress losses for given strain—Assume, for example, that the actual strain loss due to shrinkage and creep in the concrete is the value obtained for Material A—0.000581 in. per in.—and that there will be a 4% relaxation of the steel. If the initial prestress is as given in Table I, the final forces will be as given in Table III.

From this table, it can be seen that in one instance (Material B) the girder will have more prestressing force than wanted, and in another instance (Material C) it will have less.

As a more drastic example of the effect of a fixed loss factor, suppose the tendons to be mild steel bars stressed initially to 20,000 psi. The losses, even without relaxation of the steel, would be in the vicinity of 20,000 psi. Hence no prestressing force would remain on the concrete.

• Alternative specifications—Therefore, when various materials differing in strength and working stress may be used for tendons, the designer should be very careful in specifying prestressing force. Two methods of specifying this force are suggested here:

The first and perhaps most foolproof is for the designer to specify the required final force along with the unit-stress loss expected in the steel due to shrinkage and creep of the concrete. Most texts on prestressed concrete outline a procedure for this. The designer should also specify an initial allowable working stress in the steel, along with a percentage of initial stress for relaxation loss in the steel.

The second method, which is not satisfactory for competitive bidding, is for the designer to work with a given material and base percentage losses on this material. For alternate materials, the unit-stress loss may be calculated.

If this first method had been used for the design of the 65-ft girders, with a required final force of 310,000 lb, losses due to shrinkage and creep in the concrete of 16,300 psi, and losses due to relaxation of steel of 4% of the initial stress in the steel, the area of tendons required would have been as shown in Table IV. The table shows that material C would have been required to have a larger cross section.

Thus, for the designer to obtain final forces in the concrete as required, care must be taken in the writing of specifications to assure prestress losses consistent with strain losses.

Table I—Tendon areas required for same loss factor

Method	Material	Ult. Strength—psi	Initial Tendon Stress—psi	Tendon Area—sq. in.
A	¼-in. wires	220,000	143,000	2.56
B	¼-in. wires	240,000	156,000	2.34
C	1-in. bars	145,000	94,000	3.89

Table II—Final tendon stresses

(15% prestress loss specified)

Method	Loss—psi	Final Stress—psi
A (wires)	22,000	121,000
B (wires)	23,500	132,500
C (bars)	14,000	80,000

Table III—Final forces on concrete

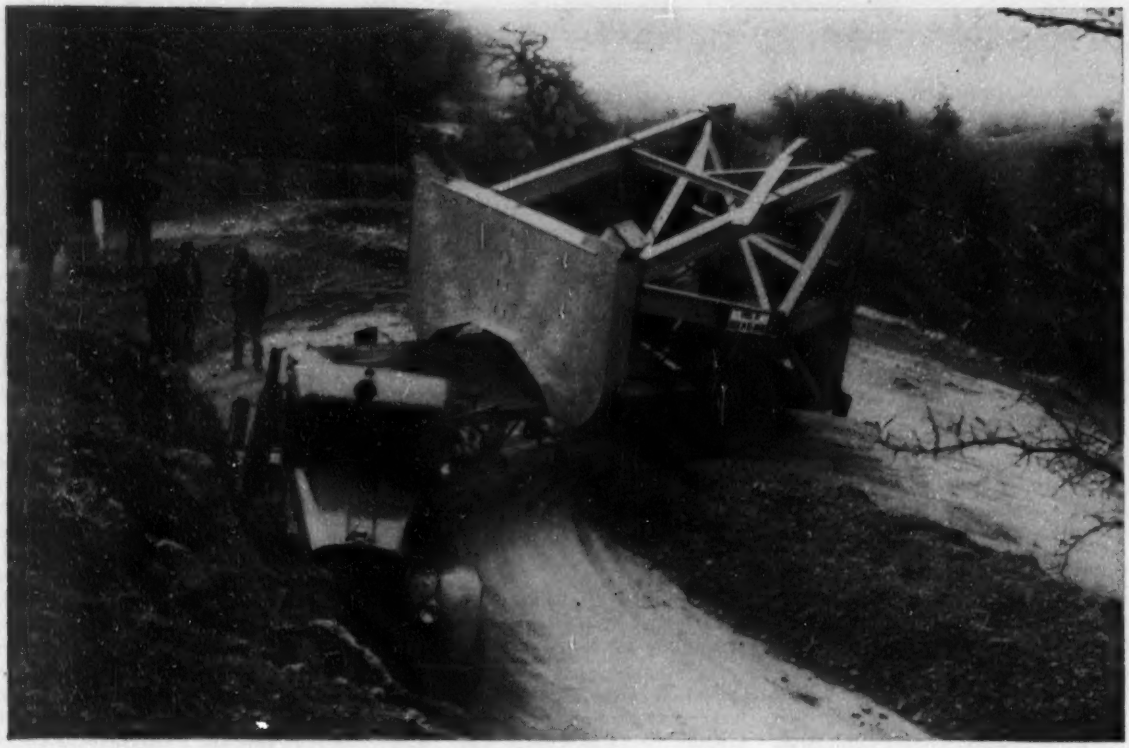
(0.000581 in. per in. strain loss for creep and shrinkage in concrete, 4% loss due to relaxation of steel)

Method	Total Stress Loss in Tendons—psi	Final Tendon Stress—psi	Final Tendon Force—lb
A	22,000	121,000	310,000
B	22,400	133,600	313,000
C	18,200	75,800	295,000

Table IV—Tendon areas required for same prestress loss

Method	Initial Stress—psi	Relaxation Loss—psi	Shrinkage and Creep Loss—psi	Final Working Stress—psi	Tendon Area—sq. in.
A (wires)	143,000	5,730	16,300	120,970	2.56
B (wires)	156,000	6,240	16,300	133,460	2.33
C (bars)	94,000	3,780	14,550*	75,670	4.10

* Corrected for difference in modulus of elasticity of steel.



HAIRPIN TURNS on access road made difficult the hauling of elements of a 120-in. telescope for the University of California's Lick Observatory on Mount Hamilton near San Jose, Calif. Truck crane had to help trailer around curve.

Astronomers' "eye" is tough construction job

Tolerances as limited as 0.002 in. were required in a $1 million steel fabrication and erection job now nearing completion at the University of California's Lick Observatory, where a 120-in. reflector type telescope—second in size only to the 200-in. giant on Mount Palomar in southern California—is being installed.

And that's really tough work when the job involves 140 tons of structural weldments and machine assemblies, and is complicated by the tortuous 19-mile approach road to the observatory (on Mount Hamilton, 25 miles east of San Jose).

The steel work started in June, 1952, with the award of a $938,000 contract to Judson Pacific-Murphy Corp., who were sole bidders. Design was by the University of California staff working in close collaboration with astronomers and engineers of the Palomar Observatory. Prime responsibility rested with Joseph Nunn, Los Angeles mechanical engineer, and W. W. Baustian of the Lick Observatory staff.

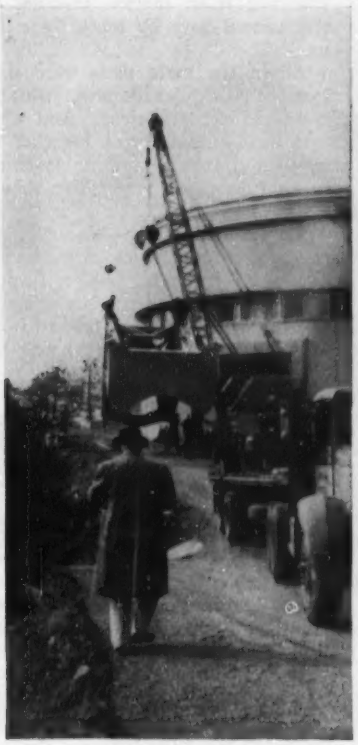
J-P-M's job was to fabricate and erect the 84-ft high telescope mounting and machinery in an observatory building previously constructed to house the 120-in. telescope. The building had an access hatch just big enough to admit the largest component. And a 25-ton overhead bridge crane was already incorporated in the structure. Even so, the contractor had to use an auxiliary hoist to provide extra lifting capacity to help the bridge crane with the 29-ton polar axle and the 32-ton yoke. The hoist also aided lateral movements.

The 120-in. nomenclature applies to the diameter of the large circular mirror of the telescope. This six-ton piece of glass, which is being used for the mirror, was fabricated by the Corning Glass Co. some years ago with the intention of using it in conjunction with the 200-in. telescope at Palomar. However, the need for its use at that observatory did not arise and, as a result it was—in effect—the inspiration for building a sister telescope on Mount Hamilton.

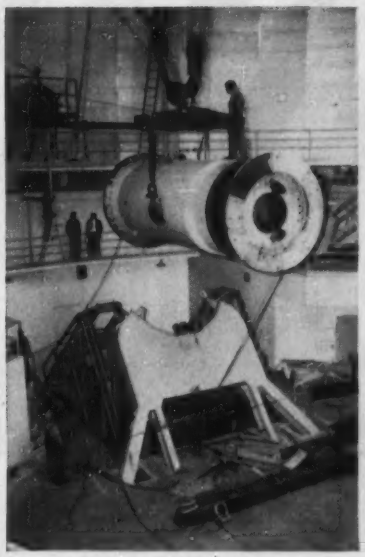
• **Telescope is camera**—These instruments, in their primary function as telepscopes, do not provide for astronomical observations by direct visual means. Rather, the 120-in. glass has been ground and highly polished to form a concave surface which will ultimately be aluminized. Thus, having the qualities of a concave mirror, it will act in the capacity of an extremely large camera which will catch the light of the star under observation and reflect it back to a focal point some 52 ft away. At this focal point, a photographic plate is exposed to the reflected light of the star. The picture of the star provides a permanent record which is always available for the astronomer's detailed study.

Difficulties involved in what might appear to be a simple operation are many: the star under observation must be tracked over a period of time which may range from thirty minutes to six hours — depending upon brilliancy. Thus the motion of the telescope must be synchronized accurately with the motion of the star so that the reflected light may be maintained in a permanent location on the phtographic plate, thus assuring a clear picture. This synchronization of movement between the telescope and the star is maintained by two individual motions known as the right ascension motion and the declination motion.

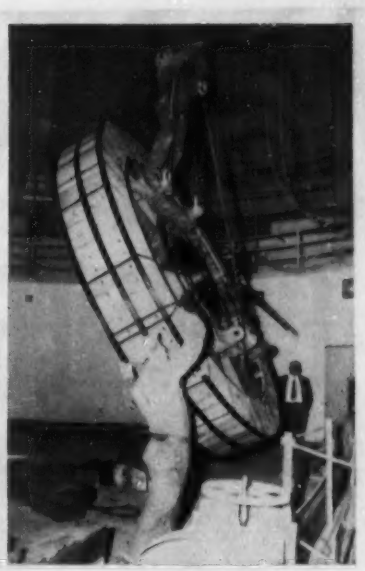
• **How it works**—The axis of the polar axle of the telescope, together



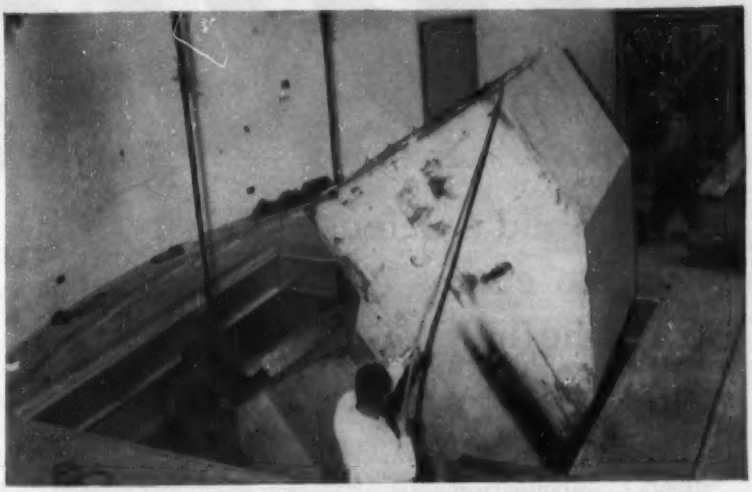
TRUCK CRANE UNLOADS part of base frame at observatory building.



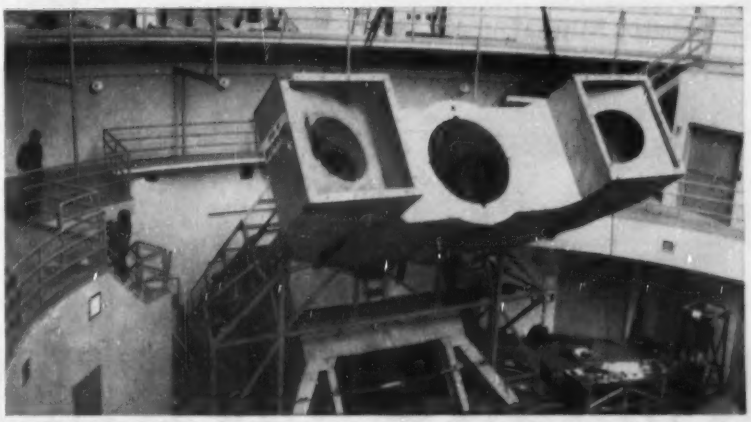
TELESCOPE'S POLAR AXLE is set on base frame. Observatory's 25-ton bridge crane was aided by auxiliary hoist.



CAREFUL CRATING protects right ascension gear during installation. Gear machined to 0.0002-in. tolerance.



YOKE WELDMENT is hoisted through access hatch. Unit weighing 32 tons was carefully balanced at center of gravity for best handling.



YOKE IS POSITIONED as telescope starts to take shape. Entire unit will be complete and in operation early in 1955.

with its yoke and forks are aligned parallel to the axis of the earth. This entire assembly will rotate about the polar axis and it will be supported by oil pads that are placed at the north and south support points of the base frame.

This rotational movement is called right ascension. The two outer ends, or prongs, of the forks support the tube assembly. This tube consists primarily of the mirror, supported at the lower extremity, and the prime focus cage, located at the tube's upper extremity. The tube assembly moves about its two points of support at the fork ends. This motion is called the declination motion.

By coordinating the two motions simultaneously, the astronomer tracks the movements of a star.

The right ascension motion is produced by the action of a worm gear and worm that are positioned on the south end of the polar axle. This gear is some 12 ft in diameter and weighs 6½ tons. It has machining accuracies which are above and beyond normal industrial practices. The precision of this gear must be such that no variation or eccentricities are introduced into the right ascension movement. In other words, movement must be so smooth that the reflected light on the photographic plate while the

(*Continued on page 40*)

telescope is in motion tracking the star cannot vary by more than .002 in.

All of the main parts were structural weldments with only ¼-in. tolerance in any weldment. And where two such assemblies fit together the welds and interfaces were machined to meet even greater precision requirements.

Parts were hauled to Mount Hamilton by truck and trailer. A truck crane accompanied the big hauls. And on many occasions either trailer or tractor was lifted by the truck crane to help negotiate hairpin curves that were met on the way.

Project manager on the work for Judson Pacific-Murphy Corp. was Robert O. Valentine. Oakland Machine Works subcontracted for all telescope machinery with one exception—the huge highly precisioned right ascension gear and the similarly large declination gear were made by Western Gear Works, Lynwood, Calif. Assisting Oakland Machine Works was Humboldt Instrument Co. of Oakland, Todd Shipyard of Alameda, Union Diesel Co. and Lyco Machine Co. of Oakland and Bethlehem Pacific Coast Steel Corp., Shipyard Division, in San Francisco.

Daylight design method revised after S.M.U. study

Continuation of a daylight study project at Southern Methodist University, sponsored by Detroit Steel Products Co. and Libbey-Owens-Ford Glass Co., has resulted in a revision in the method originally recommended for predicting daylight illumination in building interiors.

In 1952, R. L. Biesele, Jr., W. J. Arner and E. W. Conover reported development at an empirical method for computing daylight illumination in rooms (ENR Jan. 29, 1953, p. 41). The method involved determination of a "window index" from a set of curves and the application of this index in order to obtain illumination coefficients.

After another two years of research, J. W. Griffith, W. J. Arner and E. W. Conover reported at the National Technical Conference of the Illuminating Engineering Society in Atlantic City, N. J., in September, that they have dropped the window index concept. Studies have shown that this index is not suitable for rooms having ratios of room length to room width other than one.

Instead, they now plot illumination coefficients directly against different variables affecting the particular situation. The method remains relatively simple.

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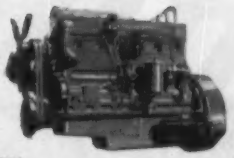

NEW increased power, with all-new 201-hp Royal Red Diamond 501 engine standard in new high-power-to-weight 220 Series models.

NEW space-saving, high economy, big capacity COE models—3 series, 12 models from 21,000 to 30,000 lbs. GVW—50,000 to 65,000 lbs. GCW. Also available with sleeper cab.

NEW Super Space Saver ROADLINER® conventional truck-tractors that haul all 35-foot trailers in 45-foot limit. GCW, 42,000-65,000 lbs.

NEW factory-installed 50-inch one-man cab that permits balanced, 2-side loading of steel, lumber, pipe and other longer-than-truck materials.

NEW power steering for all models. New light-duty truck features include tubeless tires, optional automatic transmission and overdrive.

NEW multi-stop models with METRO® bodies—14,000 to 16,000 lbs. GVW. 10 other models—5,400 to 11,000 lbs. GVW with METRO and METROETTE bodies—available with new METRO-Matic transmission.

PLUS four-wheel-drive models of 11,000 and 15,000 lbs. GVW—built for lowest cost operation in roughest, toughest terrain.

PLUS factory-installed, Underwriters approved LPG power, available as optional equipment in 54 models from 4,200 to 45,000 lbs. GVW.

PLUS 10 diesel engines for 30 models. The INTERNATIONAL line of 185 basic models offers widest choice of power—30 engines, gasoline, LPG and diesel.

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Electronically Weldforged and Bonderized for greater safety, strength and longer life, Kerrigan grating is custom fabricated to your exact requirements. Our large drafting staff is at your service to prepare drawings subject to your approval . . . . and the finished grating comes to you well marked and identified for low cost installation.

Bearing bars, and cross bars alternating right and left for the utmost in safety, are weldforged into one-piece, inseparable units. Write for your FREE copy of illustrated booklet as shown. It contains complete engineering data and shows how Kerrigan's *never-fail* weld stands up under the severest kind of punishment.

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MEN AND JOBS

Housing chiefs name Mills as organization president

Walter B. Mills Jr., executive director of the Greater Gadsen (Ala.) Housing Authority, has been elected president of the National Association of Housing and Redevelopment Officials.

Mills, who succeeds O. C. Winston of Baltimore, was named at the organization's 21st annual session at Philadelphia.

Other officers include Robert D. Sipprell, executive director of the Buffalo Municipal Housing Authority, first vice president, and P. S. Freedman, controller of the Chicago Housing Authority, vice president.

Men and Jobs briefs . . .

• **Careers—James J. Rose** has resigned after 24 years as a U. S. government engineer, to join Knappen-Tippetts-Abbett-McCarthy as area engineer for the firm in Izmir, Turkey. His latest assignment was with the Atomic Energy Commission at Santa Fe, N. M.

Col. Hubert S. Miller, who until his recent retirement was Assistant Chief of Engineers, has joined William J. Wenzel to form the consulting firm of Wenzel & Miller, at Great Falls, Mont.

Col. John A. Graf becomes district engineer at San Francisco Nov. 15.... **Emily Brown,** daughter of Division Engineer C. E. Brown, becomes the first woman traffic engineer ever employed by the North Carolina Highway Department . . . **Edwin S. Howell** becomes city manager of Richmond, Calif.

R. F. Leuthy has become a vice president of Irons & Reynolds, Inc.... **E. A. Gramstorff** becomes dean of the graduate division of the College of Engineering at Northeastern University; C. O. Baird succeeds him as chairman of the Department of Civil Engineering . . . **Richard Dess** is now acting city engineer for Wauwatosa, Wis., succeeding Henry Wildschut, new county expressways engineer.

George R. Thompson, for 17 years city engineer of Detroit, has joined the executive staff of Giffels & Vallet, Inc., L. Rossetto Associated Engineers and Architects . . . **John C. Snyder** has become dean of the Harvard School of Public Health.

(*Continued on page 44*)

new!

ATLAS *Shotmaster* BLASTING MACHINE

The first condenser discharge type blasting machine utilizing a high voltage DC generator directly connected to charge the condensers.

Dependable blasting starts with a dependable blasting machine. And this new Atlas blasting machine is designed to give you every advantage in dependability and safety.

Hand actuated generator operation does away with battery replacements and gives consistent voltage in both hot and cold weather.

Built-in Volt Meter shows actual voltage while the condensers are being charged.

Adequate voltage assured. The condensers cannot discharge into the firing circuit below a predetermined voltage.

No danger of a residual charge in the condensers. With the condensers connected directly to the generator, any residual charge is dissipated quickly.

Simplified operation. The generator is hand operated. The firing trigger may be closed or open during the voltage build-up. Only when the voltmeter needle indicates optimum power can the firing circuit be activated.

Waterproof. The entire unit is sealed and the switch is waterproof. The new Atlas blasting machine is always ready to go . . . under all conditions.

Sturdy, welded steel case is compact and easy to handle. The whole machine weighs only 30 lbs.

Insulated-type terminals. Binding post screws are made of a non-conducting material. Terminals are well separated for maximum safety.

For complete information on this new blasting machine, get in touch with your Atlas representative. He will be glad to give you full details and arrange a demonstration if you wish.

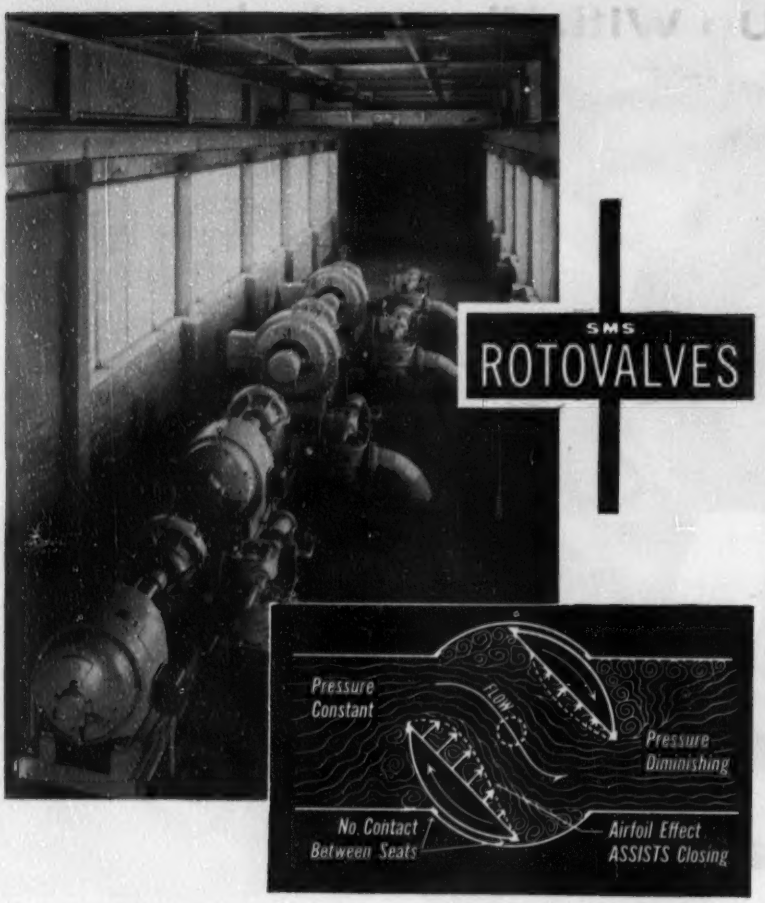
ATLAS

ATLAS EXPLOSIVES

"Everything for Blasting"

ATLAS POWDER COMPANY,
WILMINGTON 99, DELAWARE

Offices in principal cities



Hydraulic Imbalance Makes SMS-Rotovalves

EASY TO OPERATE

SMS-Rotovalves are easier to open and close. As shown in the diagram, hydraulic imbalance effects an airfoil on the valve's inner surface to assist closing. The conical plug first lifts, then turns on bronze trunnions to eliminate friction and wear on seats, finally reseats. This eliminates the causes of failure and breakage.

Because SMS-Rotovalves need less effort to operate, one man can handle manual opening or closing. In electric operation, smaller motors can be used without increasing operating time. Hydraulic or pneumatic operation requires smaller cylinders and less pressure.

These exceptional performance characteristics are the results of over 75 years of hydraulic research and engineering. For detailed information on our complete line of Rotovalves, Ball and Butterfly valves, see our local representative, or write to the S. Morgan Smith Company, York, Pennsylvania.

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MEN AND JOBS

• **Retirements**—**Ernest K. Varley,** after 33 years with the Warren, Ohio, city engineering department, last as city engineer . . . **George R. McCormack,** chief of Denver's building inspectors since 1950.

David Forgan, director of Construction for the Hydro Electric Power Commission of Ontario, after 35 years with the Hydro. Originally hired to work on the St. Lawrence Power development, he spent the intervening years managing a construction force that once reached a peak of 11,000 men, building the great Des Joachims and Otto Holden generating stations —finally did get to work on initial phases of the St. Lawrence development before retiring.

• **Associations**—**H. E. Selby** of Charlotte, re-elected president of the North Carolina Ready-Mixed Concrete Association . . . **Gilbert E. Morris,** Los Angeles Superintendent of Buildings, re-elected president, Pacific Coast Building Officials Conference.

Z. A. Gorder, city engineer of La-Crosse, Wis., named chairman, Wisconsin section, American Water Works Association.

J. D. Spence, Jr., elected president South Carolina Water and Sewage Works Association.

Paul F. Rice, recently field structural engineer for the Portland Cement Association becomes technical director of the American Concrete Institute.

J. C. McDonald elected president, North Carolina State Highway Employees' Association.

• **Honors**—**Michael Baker Jr.** has been elected a member of the national Young Presidents' Organization.

• **Business**—**John P. Soult,** former vice-president, is now executive vice president of Fruin-Colnon . . . **F. J. Cordova** is named general manager of Testing Service Corp., South Bend, Ind. . . . **H. W. Rudolph** becomes vice president, engineering and operations, U. S. Steel Homes, Inc.

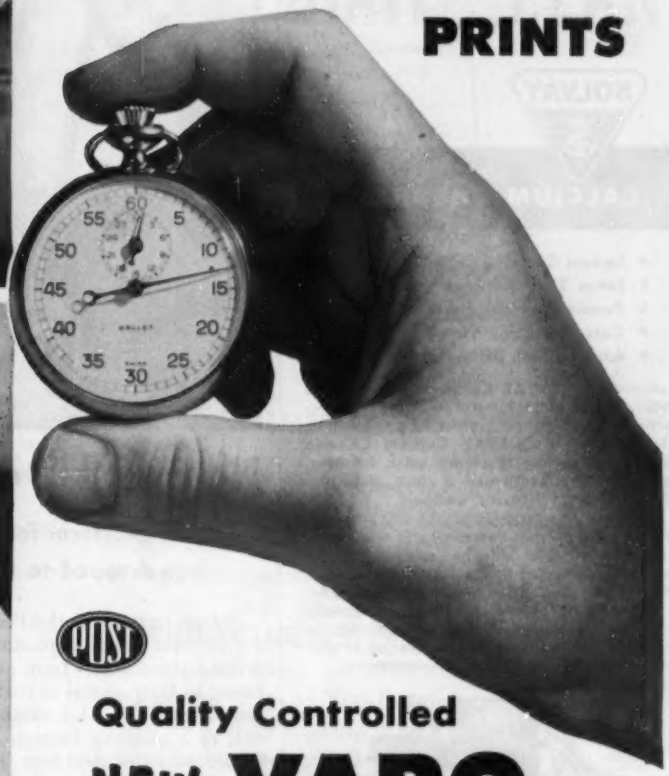
Eugene K. Lydon, formerly executive vice president, becomes president of Great Lakes Dredge & Dock Co., succeeding **William P. Feeley,** who retires.

Charles A. Woodley, formerly manager of the Peoria plant, becomes vice president of Caterpillar Tractor Co.

Controlled Coating Techniques

now assure you . . .

CONSISTENTLY BETTER PRINTS



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NEW VAPO

Dry-Developed Paper

Whenever ammonia prints are made, POST's Quality Controlled Coating is real news. It saves time—saves labor—saves material by providing dependably uniform paper that makes prints with rich color and sharp contrast.

Try NEW VAPO for one week on your machines. Write today for details about an unusual special offer.

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DEALERS IN ALL PRINCIPAL CITIES

Get WINTER CONCRETE with HIGH EARLY STRENGTH

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SOLVAY

CALCIUM CHLORIDE

- Lowers Costs!
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Today—with SOLVAY Calcium Chloride, it is both possible and practical to carry on concreting operations during the winter months. The addition of SOLVAY Calcium Chloride assures fast setting to permit quick finishing, full ultimate strength and a short protection period—even in freezing weather.

Whether you do your own mixing or use ready-mix concrete, you will be sure of quality work, minimum cost and a faster operation if you are sure that your specifications include: 1. The use of heated water and materials. 2. The use of SOLVAY Calcium Chloride in the mix. 3. The use of proper covering or protection against anticipated temperatures.

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"The Effects of Calcium Chloride on Portland Cement" is filled with important information and answers to your questions about the use of calcium chloride in concrete. Mail coupon below for your free copy.

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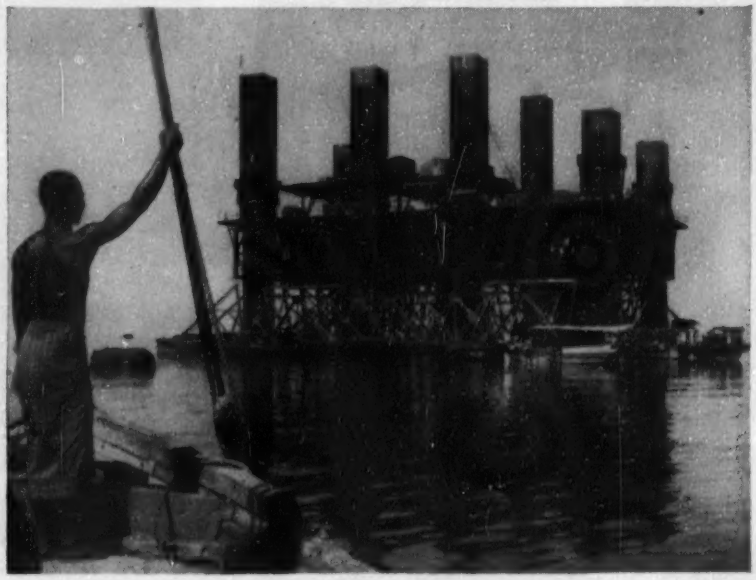

New wrinkle in oil drilling islands

New platform for oil drilling at sea is positioned by barge, legs dropped to bottom and platform jacked to final level

Set up recently in the Persian Gulf, a 1,200-ton movable platform for oil drilling at sea differs from ones usually found in U. S. waters in that it cannot float itself. The $1.4-million rig consists of a platform built around eight square-sectioned steel legs. Erected on top of two 1,000-ton pontoon barges in the harbour of Doha, the rig was towed to the drilling site, and when positioned the eight legs were dropped to the sea floor. The barges, supporting the platform and the legs, stand clear of the whole structure by supporting it on steel falsework. This falsework support allows the legs to drop clear, without moving the barges, to the sea floor.

When the eight legs rested firmly on the sea floor, an hydraulic jack system raised the platform to its drilling level and the barges were floated clear. Upon completion of the first well, the barges will be brought back, the operation repeated in reverse, and the platform set up in a new drilling location. If the well is successful in finding oil, a much smaller platform will be built around the well-head fittings to provide access.

Main deck of the drilling platform is 140 ft long and 90 ft wide and sits about 40 ft above the water. Facilities include accommodation for two complete crews, storage, refrigeration and air-conditioning. Built for the Shell Petroleum Co., Ltd., and fabricated in the Netherlands, the platform was erected by George Wimpey & Co., Ltd., London, England. During erection at Doha, the heat was so intense that the steel had to be dipped in the sea before it could be handled, and air cooling had to be provided in enclosed spaces before men could work in them.

Long-awaited development set for Vancouver Island

For a long time residents of Vancouver Island, B. C., have wanted highway links to their west coast. This month plans have been announced for a twin development—four western access roads plus a big pulp mill expected to employ some 400 workers.

Construction of the new mill in the Port Renfrew-Ucluelet area will get underway in July, 1956, by British Columbia Forest Products, Ltd. The project is one of the first steps in an industrial and commercial development program long expected for the island's west coast if road access was provided.

Two of the new roads—to be com-

(*Continued on page 48*)

NOW *The New, Cash-conserving Way To Buy Equipment*

C.I.T. "PAY-AS-YOU-DEPRECIATE" PLAN

1. Long Terms, up to Ten Years
2. Attractive Rates
3. Payments Geared to New, Faster Depreciation

WHEN YOU BUY

Machine Tools · Construction Equipment · Lift Trucks

C. I. T. has developed its new "Pay-As-You-Depreciate" Plan to give buyers the advantages of favorable capital goods depreciation aspects of the 1954 Internal Revenue Code.

When buying the above three kinds of new equipment you get:

LONG TERMS. For instance . . .

- machine tools—10 years
- construction equipment—6 years
- lift trucks—6 to 8 years.

ATTRACTIVE RATES. The finance charge is 4.25% for each year of the term computed on the original unpaid balance.

PAYMENTS GEARED TO DEPRECIATION. Most important—your payments are geared to the new, faster depreciation allowable each year for the equipment purchased. Payments are graduated rather than uniform. The C. I. T. Plan is devised to fit the fastest method of depreciating your new machinery—the "Sum of the Digits" method. In effect, you write off as expense your equipment payments. Simultaneously, you gain all the obvious cost-saving advantages of new, more efficient equipment.

FOR IMMEDIATE ACTION

BUYERS: The cash-conserving and profit advantages of the "Pay-As-You-Depreciate" Plan are worth looking into immediately. Call or write one of the offices below.

MANUFACTURERS, DISTRIBUTORS: If you sell machine tools, construction equipment or lift trucks, the "Pay-As-You-Depreciate" Plan can build sales for you by making it attractive for your prospects to buy now. Call or write one of the offices below.

IN AN AGE OF SPECIALIZATION, C. I. T. Corporation offers specialized service. This new plan is typical of C. I. T.'s alert, flexible financing service. 46 years of experience in providing financing for American industry gives us the ability to serve you advantageously in all phases of machinery and equipment financing. Let one of our representatives visit you and prove that statement.

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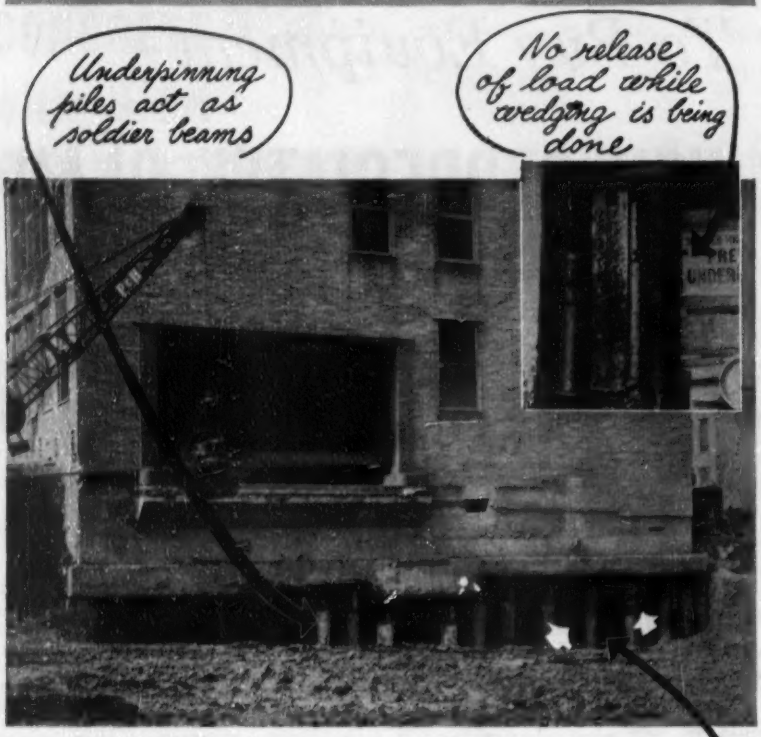
ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS


Underpinning piles act as soldier beams
No release of load while wedging is being done
Easy access speeds progress, cuts costs

Project: Bell Telephone Laboratories Addition, Murray Hill, N. J.

General contractor: Mahony-Troast Construction Co., Clifton, N. J.

Architects: Voorhees, Walker, Foley & Smith, New York

PRETEST UNDERPINNING PREVENTS SETTLEMENT IN TUNNEL JOB

To construct a bus terminal, a tunnel was needed beneath this Bell Telephone Laboratory housing delicate instruments. Routine methods offered no answer. The architects called upon Spencer, White & Prentis, who solved the problem speedily and economically with Pretest Underpinning — a method originated by this firm.

The essential difference between Pretest Underpinning and other methods is that in Pretest Underpinning the transfer of the load from the foundation to the underpinning cylinder is done with the full test load maintained on the cylinder by the hydraulic jacks. Even during wedging, the full load is maintained. This method of transferring the load is the Pretest feature which eliminates the damaging settlement inherent in other methods.

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INTERNATIONAL

pleted by November, 1956—will be built in part by the lumber company as a condition of being granted a forest management license. One 14-mi road will connect Jordan River and Port Renfrew. The second will give Tofino and Ucluelet their long-awaited link with Alberni.

The third road in the program, also to be finished in two years, will link Campbell River with Tahsis. The fourth, which will take longer to complete, will connect Port Renfrew with the Island Highway.

International briefs . . .

• **Big harbor bridge**—Auckland is getting ready to award a $9.6-million contract for building a 3,348-ft-long harbor bridge—the largest steel construction in New Zealand. Work is expected to start in mid-1955 and be completed by the end of 1958.

• **Key road project**—Before the end of the year Thailand and the U. S. will start building a modern $7.5-million highway to link Bangkok with the isolated Northeast provinces. The 200-mi road will run from Saraburi (near Bangkok) to Ban Phai and pass through Korat, the Northeast's principal city.

• **Oil pipeline plans**—Plans for a 500-mi oil pipeline between Durban and Johannesburg are being worked out by a South African technical committee representing commerce, industry, engineering firms, oil companies and automobile clubs. Increased fuel consumption, particularly in inland areas, has reached a stage where the railway system is unable to cope with traffic.

• **Tunnel talk**—France has finished studying the possibilities of digging a $11.2-million pilot tunnel under the English Channel to Great Britain. It would carry cables (telephone, telegraph, power) plus a natural gas pipeline—and could later be expanded to handle rail traffic. The long-discussed project reportedly has been held up until now by British concern about national security.

• **Railroad across Africa**—A syndicate of British businessmen is sponsoring a survey of a proposed $50-million railway line to cross Northern Bechuanaland and South West Africa. The project would provide a direct west coast outlet for the Rhodesias and, at the same time, open up mining areas. Because of flat terrain, the line could be laid at the rate of one mile a day and be completed in 2½ years.

Laying a section of 42-in. pipe on Hearne Avenue, just east of the Cincinnati Zoo.

Cincinnati Meets Increased Water Demands with New 42-in. Tar-Enameled Steel Main

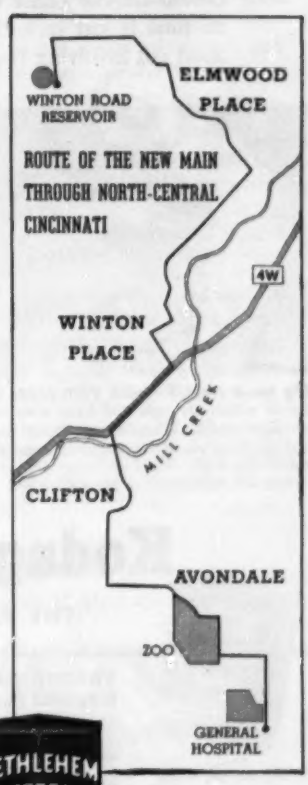
The Cincinnati Water Works recently came up with a single answer to the double problem of how to supply the fast-increasing water demands of (1) the mid-city commercial and industrial Central Service section, and (2) the growing Western Hills residential area.

Their solution called for a 36,000-ft-plus steel main, 42 in. ID, to connect the Main and Tennyson pumping stations with the Winton Road Reservoir. The added gallonage would be used to serve the Eastern and Western Hills, thereby releasing a huge quantity of water for Central Service. Steel pipe was considered a "must" to handle the working pressures involved, sometimes as high as 200 psi.

Now nearing completion, the line starts at the corner of Union St. and Burnet Ave., in front of the Cincinnati General Hospital, and extends through Avondale, Clifton, and Winton Place to the Winton Road Reservoir in the heights north of the city.

All of the pipe used on this job, together with a variety of fittings, was supplied by Bethlehem, making the seventh time since 1938 that Cincinnati has chosen Bethlehem Pipe.

Bethlehem Tar-Enameled Steel Pipe is furnished in 40-ft lengths and in diameters from 18 in. to the largest permitted by common carriers. It is readily joined in the field by welding, mechanical couplings and by riveting. For further information, we suggest that you phone or write the nearest Bethlehem sales office.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM *Tar-Enameled* STEEL PIPE

BETHLEHEM STEEL

Glass containers for every purpose are designed and manufactured by Owens-Illinois Glass Company—over 100 billion units made in last 25 years

More than 3,000 new designs per year
—without a "bottleneck" in drafting

In the Design Development Department of the Owens-Illinois Glass Company, Toledo, Ohio, no time is lost in tedious redrafting. A simple short cut involving the use of Kodagraph Autopositive Paper and Kodalith Film *gives customers fast service . . . saves dollars every day.* Chances are you can adapt this technique to your own routines.

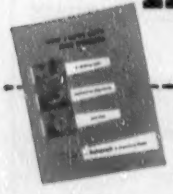
Big head start. Kodalith Film prints of elements which are repeated from time to time are kept on file. When a new design calls for any of these elements, the draftsman merely tapes the right films on clear acetate *and orders an Autopositive.* No redrafting!

A positive photographic intermediate is produced *directly* by exposing the "paste-up" in contact with Kodagraph Autopositive Paper, then processing the print in standard photographic solutions. No negative step . . . *easy room light operation.*

New design is added to the Autopositive, which has dense photographic black lines on a clean white translucent base. Required number of shop prints—each crisp and uniform—are produced from this master, which can also be used later on for minor revisions.

Kodagraph Autopositive Paper

"THE BIG NEW PLUS" in engineering drawing reproduction



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Industrial Photographic Division, Rochester 4, N. Y. 67

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OBITUARIES

Lloyd C. Fassett, 56, assistant area manager in the Long Beach, Calif., district for Guy F. Atkinson Co., died Oct. 7. He was with the construction firm for 14 years.

Edward H. Sargent, 69, chief engineer of the Hudson River Regulating District since 1923, died Oct. 9 in Albany, N. Y. He started his engineering career with the state in 1907, after graduation from Massachusetts Institute of Technology.

Charles J. Townsend, 68, vice-president of Russell Construction Co., Ltd., Toronto, died in Toronto early in October. He received his civil engineering degree from the University of Toronto and worked in Chicago and Cleveland before joining the Canadian firm.

Lawrence Kubicki, 69, retired building contractor of Toledo, Ohio, died Oct. 3.

Robert Chamberlain, 39, design structural engineer for Mellon-Stuart Co., Pittsburgh contracting firm, died Oct. 8. A civil engineering graduate of the University of Notre Dame, he formerly worked for Pittsburgh-Des Moines Steel Co. and Peter F. Loftus Corp., Pittsburgh consulting engineering firm.

Arthur J. Davidson, 54, engineer with the Colorado Highway Department for 30 years, died Oct. 12 in Denver. In 1952 he was appointed first superintendent of the Denver-Boulder turnpike.

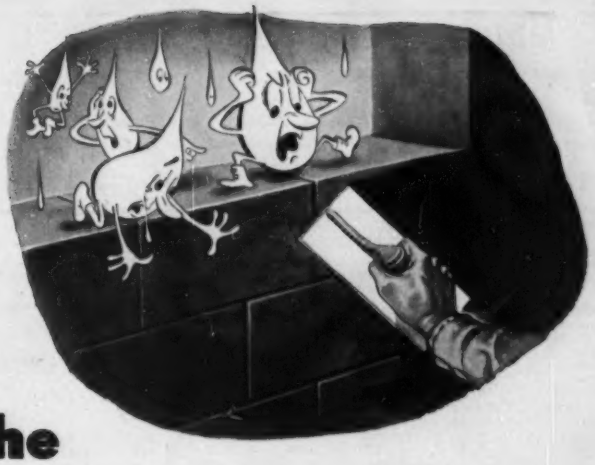
Gennaro Sposato, 83, retired Syracuse, N. Y., contractor, died Sept. 27.

Grover N. Conley, Henderson County, Ky., road engineer for the past 20 years, died Oct. 7. Early in his career he worked for the Kentucky State Highway Department.

Walter McCulloh, 91, an engineer in Niagara Falls, N. Y., for more than 60 years, died Oct. 15. He had served as consulting and project engineer for numerous state and federal agencies.

Arthur Siegel, 43, a civil engineer for Sillman Construction Co., died in New Haven, Conn., Oct. 18.

Frederick C. B. Anderson, a civil engineer for 33 years with Philadelphia's Bureau of Survey and Design, died Oct. 3. He was a graduate of Penn State University.



Put the Damper on Dampness with Flintkote Protective Coatings

Clamp down on dampness *before* it gets inside and through masonry walls.

You can apply Flintkote Asphalt Mastics by trowel, brush or spray to the interior face of exterior walls above grade to prevent destructive moisture from entering.

You can protect walls and masonry below grade with these highly water-resistant coatings, too.

Another effective method of putting the damper on dampness is to spray Flintkote Binderseal* and Granules on exterior masonry surfaces. You get years of water- and weather-resistant protection *plus* a colorful, new-looking exterior.

And don't forget also to specify Flintkote Protective Coatings for steel, structural concrete, masonry, insulation materials . . . wherever resistance to weather, dampness and corrosion is needed.

Flintkote Protective Coatings are available in both asphalt cutback and emulsion types for ready economical application . . . by brush, spray or trowel.

For complete specifications and application data on Flintkote's wide line of coatings, see Sweet's Files. Or write us. *Reg. U. S. Pat. Off.

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FLINTKOTE

THE FLINTKOTE COMPANY, Industrial Products Division, 30 Rockefeller Plaza, New York 20, N. Y., 55th & Alameda Sts., Los Angeles 54, Calif.

The Flintkote Co. of Canada, Ltd.—Toronto, Ontario

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
December Materials, and Labor Prices, will appear in December 9, 1954 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots Gravel,	Gravel,		CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4; over.
	Paper	Bulk	Mortar	1½ in.	¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	$8 c.y., del.
Atlanta	$3.87	$3.56	$3.40	$2.07§	$2.07§	$1.83	$2.20	$2.20	$1.99	$1.99	$0.21	$0.21	$12.06
Baltimore	3.90	3.60	3.53	2.60*a*	2.60*a*	2.00*a*	2.75*a*	2.80*a*	2.65*a*	2.60*a*	.17	.17*a*	11.45
Birmingham	3.62	2.75*c*	....	2.53*n*	2.53*n*	2.08*n*	2.75	2.75	1.35	1.45	.165	.165	11.00
Boston	4.22	3.96	3.96	2.50*a*	2.50*a*	2.50*a*	1.80*a*	1.60*a*	.....	.....	.215	.245*a*	12.50*h*
Chicago	3.63	3.32	3.35	3.25‡*b*	3.25‡*b*	3.05‡*b*	3.25‡*b*	3.25‡*b*	2.25‡	2.25‡	.23	.23*b*	12.00
Cincinnati	3.85	3.55	3.63	2.19‡*e*	2.24‡*e*	2.24‡*e*	2.54‡*e*	2.54‡*e*	.....	.....	.205	.225*a*	10.95
Cleveland	N. A. in C. L.	3.19*e*	....	2.05*f*	1.85*f*	1.65	4.10*a*	4.10*a*	3.35‡	3.15‡	.....	.22	14.40*d*
Dallas	3.15	2.85	2.90	2.18	2.28	1.84	2.22	2.38	.....	.....	.11*e*	.267*h*	9.40
Denver	4.24	3.94	4.24	1.85	2.00	1.20	.....	.....	.....	.....	.23	.255*a*	10.50
Detroit	3.72	3.17	3.50	4.50‡*b*	4.50‡*b*	4.00‡*b*	3.75‡	3.75‡	4.25‡	4.25‡	.21	.21*a*	12.70*f*
Kansas City	3.67	3.47	3.48	1.85‡	1.85‡	1.50‡*a*	2.00‡*a*	2.00‡*a*	.....	.....	.22*a*	.24*c*	12.50*b*
Los Angeles	4.72*a*	4.26*a*	5.20	2.21*a*	2.41*a*	2.21*a*	2.16*a*	2.26*a*	.....	.....	.135*fm*	.245*m*	11.88*h*
Minneapolis	4.10*k*	3.79*k*	3.71	2.70‡*ag*	2.70‡*ag*	1.60‡*ag*	3.25‡*ag*	3.25‡*ag*	.....	.....	.19*i*	.....	13.25*f*
Montreal	3.16*ac*	2.96*ac*	....	3.00*e*	3.00*e*	2.25	1.65*ij*	1.90*ij*	.....	.....	.20	.20*a*	10.55*ab*
New Orleans	3.50	3.17	3.48	2.44	2.44	2.00	....	....	1.05	1.25	.278	.....	12.90
New York	4.01	3.70	3.83	2.85*bk*	2.85*bk*	1.90*bk*	2.70*bl*	2.70*bl*	.....	.....	.....	.....	14.05*am*
Philadelphia	3.58/3.97‡	3.27/3.64‡	3.58/3.63‡	2.75‡*p*	2.75‡*p*	2.15‡*p*	2.30‡	2.40‡	2.00	1.90	.22/.25	.....	12.50*ao*
Pittsburgh	3.62	3.34	3.62	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22*d*	.28	13.00
St. Louis	3.55/3.78*b*	3.25/3.51*b*	3.40/3.57	3.10*am*	2.90*am*	2.30/2.90*am*	1.60*j*	1.70*j*	1.50	1.50	.22	.28*ci*	11.90
San Francisco	3.67	3.27	....	2.07	2.07	2.17	2.22	2.22	.....	.....	.....	.28*ci*	12.15*c*
Seattle	4.80*a*	3.55*a*	5.95*A*	3.50‡*bm*	3.50‡*bm*	3.50‡*bm*	4.00‡*bm*	4.00‡*bm*	.....	.....	.28*i*	.332*bi*	12.30*f*

‡ Delivered. * Prices incl. dealers discount except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers discount not incl. *e* Truckload lots, destination price. *k* LCL.
SAND GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *k* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *o* 1-3 mi zone. *p* Add 10¢ for ea. add'l mi zone.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete *e* 5¼ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash *j* Less 1% for cash. *l* F.o.b. plant San Rafael. *m* F.o.b. yard
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10-100 cy. brackets. *d* 1-3 mi. zone. *e* 2,000 lb comp. *f* 2500 lb. comp. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause. *o* Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.90†	Buffington, Ind.	$2.85†	Steelton, Minn.	$2.95†	Muskegon, Mich.	$3.00†	Toledo, O.	$2.90†
Clinchfield, Ga.	2.90†	Independence, Kan.	2.80†	Leeds, Ala.	2.75†	Saginaw, Mich.	2.90†	Milwaukee, Wis.	3.05†
Kingsport, Tenn.	2.90†	Hannibal, Mo.	2.85†	Duluth, Minn.	2.95†	Wyandotte, Mich.	2.90†	Green Bay, Wis.	3.05†
West Des Moines, Iowa	2.95†	Northampton, Pa.	2.75†	Hudson, N. Y.	2.75†	Buffalo, N. Y.	2.85†	Ironton, O.	2.90†
Nazareth, Pa.	2.75†	Universal, Pa.	2.95†	Alpena, Mich.	2.80†	Oswego, N. Y.	3.00†	Montreal City	2.66
Bath, Pa.	2.75†	Waco, Tex. (+ 10¢ tax)	2.60†	Detroit, Mich.	2.90†	Cleveland, O.	2.90†	W. Winfield, Pa.	2.95†

† *Prices to hold for fourth quarter of* 1954.

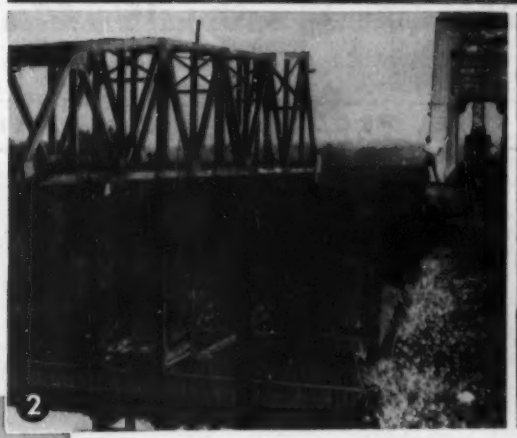
PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 86 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration Tank car	Drums	CUTBACK ASPHALT MC Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION RSI Per gal. Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095*w*	$0.185*w*	$0.105	$0.115	$0.225
Baltimore	150.00‡	75.00‡	.....	21.00*i*	.....	.085*li*	0.175*i*	.09*iw*[B]	.18*iw*[B]	.09*i*	.095*i*	0.185*i*
Birmingham	.....	49.50*i*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00*a*	23.00*a*	22.00*av*	22.00*av*	.09*p*	.....	.09*a*	.10*a*[q]	.22*a*[q]
Chicago	155.00‡	85.00‡	3.45/3.65‡*j*	19.85*b*	29.85*b*	18.85*w*	28.85*w*	.094*bw*[E]	.1740*bw*[E]	.0725*b*	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	70.00*d*	5.03*g*	23.00	.....	23.00*i*	.....	.1025*i*[F]	.....	.....	.1025*i*[G]	.18*i*[G]
Dallas	*e*	40.00	*e*	24.05	43.09	.1016	.2103	28.91	50.44	.098	.1087	.1960
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	98.00	.....	27.21	.....	27.21*v*	.....	.1188*w*[I]	.....	.0792	.....	.211
Kansas City	*e*	*e*	*e*	15.00*cl*	.....	15.00*v*	.....	.055*vcl*	.....	.055*c*	0.11	.....
Los Angeles	*e*	.....	*e*	16.00*dmx*	.....	16.00*dx*	.....	18.00*dx*[K]	.....	17.00*dv*	.0825*f*	.1725*f*
Minneapolis	.....	.....	2.07*h*	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montreal	.....	*e*	*e*	27.00*n*	39.60*n*	.135*n*	.198*n*	16.50*nu*	30.90*nu*	.132*n*	.197*ns*	.330*ns*
New Orleans	.....	.....	.....	17.80*e*	....*e*	17.50*ev*	....*e*	.085*ev*	....*e*	.0825[P]	.0825[P,L]	.....
New York	.....	.....	2.75*f*	23.80*g*[CD]	44.32*g*[D]	22.80*td*[CD]	43.57*td*[D]	.1023*w*[CD*r*]	.1880*w*[D*r*]	.....	.1023[CD]	.1918[D]
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.09*w*[F]	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00[F]	40.00[F]	.098	.11	.224
St. Louis	.....	.....	.....	18.55*f*	.....	.1713	.....	.0865*w*[M]	.....	0.155	.10	.....
San Francisco	.....	55.00*e*	.....	17.50*g*	33.00*gp*	17.50*gkz*	33.00*gkz*	20.00*y*[N]	37.50*y*[N]	18.75*v*	.085*g*	.....
Seattle	.....	.....	.....	17.50*h*	38.00*h*	17.25*hv*	.....	24.50[K]	.....	19.75*hv*	.085*h*	.095*w*

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *c* 2½ x 8¼ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6# treat. *g* 3" *h* 2" int., 4# treat. *i* 3 x 3¾ x 8¼. *j* 2¼", 6lb. tr.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery, Inglewood, Calif. *k* 50-110 penetr. *l* Less than 100 penetr. *m* 40/80 penetr. *n* Tax incl. *o* Drums not avail. Shipped in steel bbl. *q* 40/85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85/200 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks *y* F.o.b. Oakland. *z* F.o.b. refinery, Cleveland. *B* F.o.b. Destrehan, La. *C* Bulk. *D* Prices based on transporting to Manhattan via truck. *E* RC. *F* Also RC. *G* Also MS, SS. *H* RC-0 -5 incl. *I* MC 4. *J* MC, RC .0675. *K* MC 3, 4 & 5. *L* MS. *M* MC 1-5, RC 1-5, .089. *N* MC 3.

Traffic delayed only 31 hours on this unusual bridge replacement job!

1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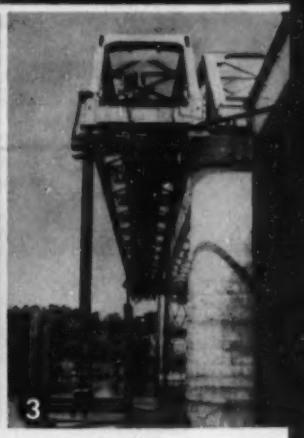
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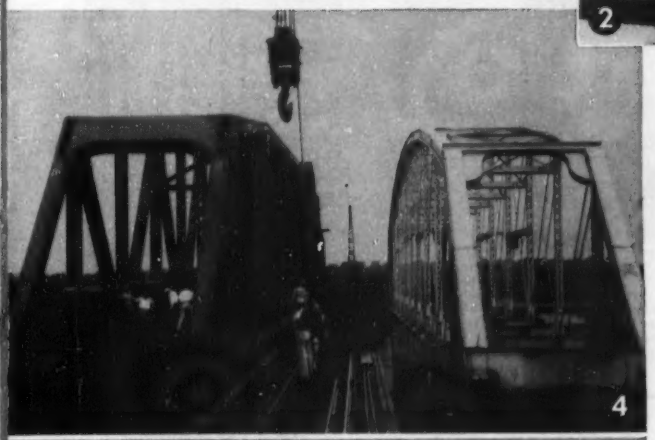
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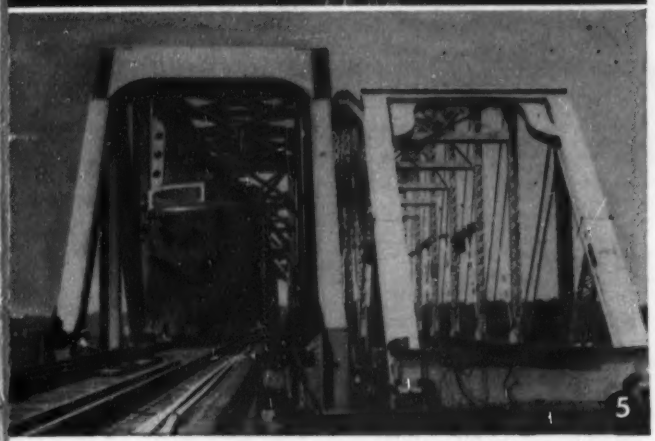

5

AMERICAN BRIDGE
floats new bridge onto old piers to give GM&O RR fast service!

THE replacement of the Gulf, Mobile and Ohio Railroad Company's bridge over the Warrior River at Tuscaloosa, Alabama, with a new structure on the existing piers is another good example of how American Bridge handles a difficult job.

The project involved the design, fabrication and erection of the 450-foot bridge (consisting of a 275′ anchor span, a 58′4″ cantilever arm, and a 116′8″ suspension span) on the original piers, and the removal of the old, out-moded bridge.

The entire new bridge (picture #1) was erected on two barges (picture #2) and floated into a temporary position on pier extensions alongside the old structure (picture #3). The old bridge was then moved off its piers (picture #4) and the new bridge rolled onto the existing piers with new rails, crossties and new timbers in place (picture #5).

The changeover was accomplished with a traffic interruption of only thirty-one hours!

Handling unusual jobs like this with such ease and speed has made American Bridge the country's number one builder of railroad bridges. Whether your requirements are for a new line structure, or for an emergency repair or replacement job, American Bridge welcomes your inquiries.

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION • GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.

Contracting Offices in: AMBRIDGE · ATLANTA · BALTIMORE · BIRMINGHAM · BOSTON · CHICAGO · CINCINNATI · CLEVELAND · DALLAS · DENVER · DETROIT · ELMIRA GARY · MEMPHIS · MINNEAPOLIS · NEW YORK · PHILADELPHIA · PITTSBURGH · PORTLAND, ORE. · ROANOKE · ST. LOUIS · SAN FRANCISCO · TRENTON

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS **AMERICAN BRIDGE**

UNITED STATES STEEL

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$4.25	$4.225	$4.30	$9.25	....	$89.00	$107.00	Not	$5.425	$7.30	$5.275	....
Chicago Area	4.25	4.225	4.30	9.25	$5.075	89.00	107.00	avail-	5.425	7.30	5.275	....
Pittsburgh Area	4.25	4.225	4.30	9.25	5.075	89.00	107.00	able	5.425	7.30	5.275	$11.50
Buffalo Area	4.25	4.225	4.30	9.25	5.075	89.00	107.00	....	5.425	7.30	5.275	11.50
Cleveland	....	....	4.30	9.25	5.075	.....	.....	....	....	....	....	11.50
Youngstown Area	....	....	4.30	....	....	.....	.....	....	....	7.30	....	....
Geneva	4.25	4.225	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	....	....	5.675	.....	.....	....	....	7.30	....	....
Pueblo	4.30	4.70	4.75	....	....	.....	95.00	....	5.425	7.30	5.275	11.50

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price /5 tons to carload lot New billet	Rail steel	EXPANDED METAL LATH‡ Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq. ft., carload lots fob mill
Atlanta	$7.31	$7.11*e*	$7.11*e*	$38.00‡	$42.00‡	
Baltimore	7.02	7.06*j*	....	42.00	45.00	
Birmingham	6.35	6.15*t*	6.15*t*	51.00*p*	57.00*p*	
Boston	7.59*u*	7.37	7.37	40.50	44.50	
Chicago	6.69	5.78*gu*	5.78*gu*	46.00‡	56.00‡	
Cincinnati	7.06*uk*	7.06*ru*	....	39.00*mn*	43.00*mn*	
Cleveland	7.02	5.76*c*	....	39.00‡	43.00‡	
Dallas	9.05	7.25	7.25	49.00	52.00	
Denver	8.15	7.20*c*	....	48.00*n*	50.00*n*	
Detroit	7.16	6.39*dw*	....	50.50	60.50	
Kansas City	7.36*u*	7.57	....	41.40	46.00	
Los Angeles	7.55*fl*	7.05	....	52.00	58.00	
Minneapolis	7.15*d*	7.68*b*	7.68*b*	37.00	41.00	
Montreal	7.50–8.60*c*/8.50–9.20*k*	6.65*i*	6.65*i*	46.00*k*	51.00*k*	
New Orleans	....	6.20*akz*	....	66.00	66.00	
New York	7.48	6.85*yaa*	6.85*yaa*	42.00*ss*	48.00*ss*	
Philadelphia	6.42	6.67	....	38.00‡	42.00‡	
Pittsburgh	6.55	6.55*z*	6.55	37.60	39.60	
St. Louis	7.09*a*	6.30*c*	6.30*c*	55.00*l*	56.00*l*	
San Francisco	7.50	6.85*f*	....	41.50	47.50	
Seattle	5.00*u*	6.55*cf*	....	53.50*w*	59.50*w*	

EXTRAS, per cwt—*Quantity: less than 700*f*, +50c; 700–1499*f*, +25c; 1500–7999*f*, +10c. *Sheet: *f3* +$2.20; *f3*, *f4* +$1.10; *f4* +80c; *f6* +62.5c; *f6*, *f7* +45c; *f8*, *f9*, *f10* +30c. *Bending: heavy, +80c; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job). *Engineering (details and shop drawings furnished by others): over 500 tons, +45c; 200–500 tons, +50c but not over $4,500; 20–200 tons, +60c but not over $3,000; 5–20 tons, +70c but not over $740; under 5 tons, +85c but not over $70. *Design only: +60c.

Quantity extras, per cwt: under 100*f*, +$4.40; 100–399*f*, +$2.20; 400–999*f*, +$1.10; 1000–1999*f*, +80c; 2000–3999*f*, +60c; 4000–9999*f*, +40c; 10,000 and up, —50c.

*‡ Delivered *a 2000–9999*f* *b 10,000–15,999*f*, fob city *c 20 tons or over *d 10,000–19,999*f* *e fob plant *f incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more *q 4*f* per sq. yd. *r 2% off for cash *s add 2.5¢ switch *t add 5¢ switch, 15¢ del. *u add 6.25¢ switch *v incl 15¢ del. *w add 20¢ del. *x add 5¢ switch *y add 30¢ del. *z add 10¢ del. *aa Dropping of listing charges causes decline this month. Prices beginning Aug. 1 based on Morrisville, Pa.; previously based on Sparrow Pt., Md. Decrease in freight costs due to switch in mill base offset mill price rise July '54. *A American made *C Canadian made † Number system replaces inch system of classifying bar sizes. New system is based on number of eighth inches in diameter of bar.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.*a*	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$101.00	$1.45	$2.42	$ .545	$1.27	$4.82	$13.925	$348.00	$356.00	$0.90*m*	$3.40*m*
Baltimore	121.50	1.45	2.42	.546	1.053	4.275*e*	11.3775	178.20	274.80	.95	2.60
Birmingham	103.00	1.45	2.42	.42	.75	2.99	....	260.00‡	375.00‡	1.25*m*	2.75*m*
Boston	122.00	1.47	2.20	‡553*grt*	1.0665*grt*	4.265*grt*	12.00*grt*	187.80*r*	289.20*r*	1.02*mq*	3.95*mq*
Chicago	107.00	1.45	2.20	.70*m*	1.35*m*	5.52*m*	13.50*m*	180.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.47	2.20	.581*l*	1.120*l*	4.04*l*	12.20*l*	235.00	350.00	.80*m*	2.95*m*
Cleveland	108.00	1.47	2.20	.49*z*	.945*z*	3.96*z*	10.66*z*	188.00*m*	245.65*m*	.85*m*	3.25*m*
Dallas	112.00	1.47	2.54	.499	.799	4.005	9.175	.....	.....	.49	1.80
Denver	118.00	1.50	2.54	.45*n*	.75*n*	3.48*n*	....	.....	.....	.74*m*	2.50*m*
Detroit	108.00	1.47	2.29	.75	1.45	5.75	15.50	230.00*m*	350.00*m*	.88	3.47
Kansas City	113.00	1.47	2.20	.53	.945	3.87	10.80	250.00	480.00	.80	2.25*q*
Los Angeles	120.05	1.88	2.39	.67*t*	1.44*t*	5.97*t*	14.49*t*	228.20‡	348.90‡	.95	2.75*t*
Minneapolis	113.50	1.40	2.42	.75*mz*	1.36*mz*	5.66*mz*	....	.....	.....	1.42*h*	4.05*h*
Montreal	110.00	....	....	1.07*u*	1.73*u*	5.93*u*	5.93*u*	.....	.....	1.17*h*	3.11*j*
New Orleans	101.50	1.45	2.42	.48	.875	4.50	....	280.00*p*	460.00*p*	.85	2.29
New York	111.35	1.47	2.20	.68	1.28	5.08	13.42	.....	.....	1.15	3.00
Philadelphia	110.00	1.45	2.20	.55	1.25	4.95*e*	13.65*e*	300.00‡	380.00‡	1.00*h*	3.95*h*
Pittsburgh	110.00	1.67	2.20	.488*m*	.864*m*	3.96*m*	9.75*m*	182.00	244.00	1.05*h*	2.80*h*
St. Louis	112.00	1.45	2.29	‡55	1.08	4.22	9.80	180.00‡	380.00‡	1.20*h*	2.70*j*
San Francisco	127.00	1.03	2.20	‡51*d*	1.41*d*	5.78*d*	14.5*d*	235.00‡	392.00‡	1.05*m*	3.30*n*
Seattle	122.00	1.54	2.42	‡51*b*	.91*b*	....	....	180.00*v*	.....	.85*b*	2.75*h*

*‡ Delivered *a Class B & heavier. Based on existing freight rates; subjec to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b Extra strength ASTM C 200–44T *c 4-in., $90 *d 88361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76–41 *h reinforced, ASTM C 75–41 *i reinforced, ASTM C 76–37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13–40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60–1941 specs. used *v standard strength *w 6 in., $1.67 per ft., Class 150, CL, fob track

| | WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote | | |

"They're working rings around the bigger trucks"

—says Ed Kimball, owner of Boylston Construction Co., Boylston, Mass., in telling how Hydra-Matic* GMC's are getting his jobs done quicker—and cutting costs to boot.

EXCAVATING AND MOVING 80,000 YARDS OF BANK GRAVEL IN SEVEN WEEKS calls for a team of eleven trucks and two shovels. Boylston Construction's two new 145 h.p. GMC M470's—equipped with 4-yard dump bodies and sideboards that hike their capacity to 8 yards—are working with nine trucks of other makes. All nine have greater horsepower—three of them are ten-wheelers. *"Those GMC's are hustling more gravel each day than any other rigs on the job," Kimball says.*

CLIMBING A STEEP UNPAVED GRADE—without room for a running start—is the only way out of the nearly completed excavation. Recently—when heavy rains made the grade slick and muddy, it proved too tough a pull for the big ten-wheelers when fully loaded. But the GMC's—their Hydra-Matic-controlled flow of power applied through single rear axles—made it every trip with loads heaped to 8 yards—just one less than the other trucks. *"We never even had them going all out," driver Jack Whalen boasts.*

GMC HYDRA-MATIC FUEL ECONOMIES really add up on the steady diet of one-mile hauls from pit to dumping point. The M470's (22,000 GVW) are each using 17 gallons of gas a day as compared with 27 gallons burned by a comparatively powered truck on the same job. *"And I'm looking forward to wiping all clutch-repair costs off my books," Kimball says. "My previous trucks wore out three clutches apiece every two years. To date, the GMC's haven't cost me a dime for any kind of repairs."*

*Hydra-Matic standard on many models; optional at extra cost on others.

GMC Truck & Coach—A General Motors Division

$5-million Bigelow Apartments, at the top of Pittsburgh's famed Golden Triangle tower 20 stories, contain 465 units all air conditioned. Steeltex Floor Lath provides reinforcement for all floors. Arthur E. Tennyson, Architect. Martin C. Knabe, Structural Engineer. Behrman & Passel, Contractors.

$13-million low rent public housing project, St. Clair Village, 79 buildings, 723 units in 3-story buildings, 366 units in 2-story row houses. Concrete floors poured over Steeltex. Marks, Fisher & Simboli, Architects. George Levinson, Design Engineer. Ragnar Benson, Inc., Contractors.

Why building designers in for reinforcing concrete

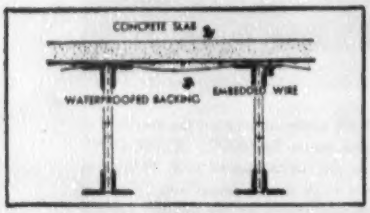
Pittsburgh, City of Vision, is one of the most progressive cities in America today. Once dirty and smoky and threatened constantly with floods, Pittsburgh, now undergoing a renaissance, is one of the country's cleanest cities.

A vast network of dams in the headwaters of the Allegheny and Monongahela make damaging floods virtually impossible. A stream purification program is well under way. A new $5-million-per-mile east-west parkway, partially completed and in use, will speed traffic through the city's heart without cross streets or traffic lights. New skyscrapers, new research centers, new industrial plants, new parks, new off-street parking garages have brought about a boom in new apartments and public housing, new schools and hospitals, new shopping centers.

When buildings of this type are being designed, poured concrete decks are most desirable and when you pour concrete, it is only natural to specify Steeltex Floor Lath, the galvanized steel wire reinforcing which carries its form on its back (see cross section below left).

Steeltex requires no additional form or pencil rod reinforcing. It costs less to install than other types of forms

New 3-story addition to Shaler Township High School added 20 classrooms, upped accommodations from 750 to 1400 students, cost $1.35 million, has gym, auditorium, three shops, offices and locker. Steeltex Floor Lath on all floors. Charles M. & Edward Stotz, Jr., Architects. Geo. H. Chilli, Contractor.



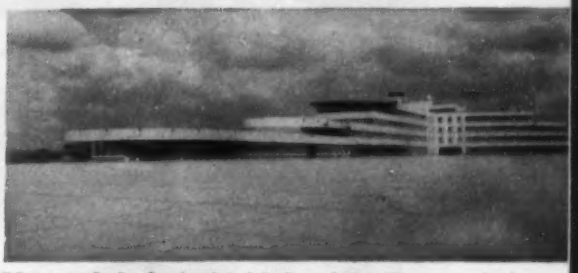
NOTE: In the cross section the weight of the wet concrete forces the backing away, which permits the galvanized steel mesh to assume its proper position in the slab. Steeltex floor lath also performs two other functions: It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.

One man can roll out a 125' roll of Steeltex in a few minutes. Steeltex provides both waterproof form and steel reinforcement for concrete floors, roofs.

The $3.5-million nurses home at University of Pittsburgh towers 14 stories, completely air conditioned, contains library, recreation room, reception rooms, cafeteria seating 400—comfortable living quarters for 600. Steeltex in upper floors. Ingham, Boyd & Pratt, Architects. Trimble Company, Contractors.

St. Clair Hospital, Mt. Lebanon Township, Pa., serving the growing South Hills area has 116 beds—cost $1.34 million. Steeltex used in floors. Kuhn & Newcomer, Architects. R. A. Zern, Structural Engineer. H. Busse, Contractor.

Brentwood-Whitehall Shopping Center built on two levels has 25 shops in 210,000 square feet—80% are air conditioned—parks 1,000 cars. All floors reinforced with Steeltex. Forsyth & Blezard, Architects. Leland Cook, Structural Engineer. Landau Bros., Contractors.



Mammoth decks in this fabulous $10-million terminal building at $42-million Greater Pittsburgh Airport, were poured on Steeltex Floor Lath. Last year 2.5-million people including travelers spent $20 million at ticket counters, restaurants, nightclub, theater, hotel and shops. Joseph Hoover, Architect. Leland Cook, Structural Engineer. Dick Construction Co., Contractors.

Pittsburgh specify STEELTEX® floors and roofs

and reinforcement for concrete because Steeltex can be rolled out like a carpet, stretched with a special tool, and clipped tightly in place by one man (see photo below left).

Steeltex with its waterproofed backing also prevents waste of concrete by reducing leakage to a minimum from the freshly poured slab—craftsmen can continue working on the floor below without getting splattered. Expensive clean-up time is eliminated.

Steeltex insures a strong floor because embedment of steel reinforcing takes place automatically (see note below left). Steeltex allows concrete to cure slowly, properly—guards against excessive cracking—can be installed over any type of joist—will support ample safe loads from 109 to 886 lbs. per square foot depending on spacing of joists and thickness of slab. No wonder Steeltex has been the choice of architects, engineers, contractors, and building owners alike, not only in Pittsburgh but wherever concrete slabs are poured over joists.

If your building plans call for poured concrete floors, roofs, plaster walls or ceilings, masonry veneer or Portland cement (Stucco) exteriors, there's a type of Steeltex reinforcing that will do the job better, faster, with less effort at lower overall cost.

For complete details see the Steeltex catalog in Sweet's or write for your free copy of a new 24-page illustrated booklet "Pittsburgh Steeltex, Backbone of Concrete, Plaster, Mortar." It's yours for the asking.

STEELTEX®

manufactured by the

Pittsburgh Steel Products Company

a subsidiary of **Pittsburgh Steel Company**

Pittsburgh 30, Pa.

Here are other recent buildings in Pittsburgh and vicinity using Steeltex:

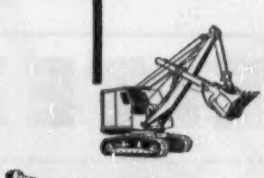
Amberson Gardens
Bedford Dwellings
Center-Negley Apartments
Greentree Apartments
Hebron Grade School
Kennilworth Apartments
Pennsylvania College for Women (Administration Building)
Shadyside Presbyterian Church (Chapel)
St. Augustine's High School
Talbot Towers (Housing Project)
Union Railroad (Office Building)
Westinghouse Educational School
Westinghouse Electric Corporation (Atomic Project Buildings)

new 1½ yard BAY CITY . . . ideal for tough quarry work

In the quarry and on many other tough jobs, Bay City Shovels are proving their honest dependability day after day. For instance, below is a new model #70, working for the Essex Sand and Gravel Company at Peabody, Massachusetts. This low-weight, low-price #70, rugged enough for quarry work, will handle any excavating job. Powered by Cummins Diesel with hydraulic coupling, the #70 as a shovel weighs 44 tons and is equipped with 23 ft. boom, 18 ft. sticks, and a 1½ yard rock-type dipper. Let us tell you more about this fully convertible shovel-crane which is available with standard or long crawlers. BAY CITY SHOVELS, INC., Bay City, Michigan.

WRITE FOR CATALOG 70/700-A

This 16-page catalog is yours for the asking. It tells the story of the 70/700 in pictures and text. Write for your copy today—no obligation.



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BAY CITY

BAY CITY SHOVELS, INC. • BAY CITY, MICHIGAN

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft.

(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 12x12 Rgh	PLYWOOD Rail freight increment (See note for base price)' ¼"	PLYWOOD Rail freight increment (See note for base price)' ⅜"
Atlanta	† $77.00	$80.00	$73.50	$74.00	$77.50	$81.00	$79.00	.....	.....			$22.32	$27.24
Baltimore	* 94.00	95.00	87.00	88.00	91.00	98.00	102.00			$160.00	$170.00	25.92	31.60
	122.00g	*122.00g*	*105.00g*	*122.00g*	*122.00g*	*122.00g*	*120.00g*	*$135.00*	*$135.00*				
Birmingham	† 77.50	79.50	70.50	80.50	82.50	85.50	85.50			115.50	155.50	21.78	26.58
	105.00	*105.00*	*105.00*	*105.00*	*105.00*	*105.00*	*105.00*	*105.00*	*105.00*	.....	.....		
Boston	* 95/103a	100/112a	90/102a	93/107a	100/112a	104/114a	.....	.....	.....	.....	.....	25.92	31.60
	88.00n	*83.00n*	*111/113*	*111/113*	*111/113*	*111/113*	*118.00*	*116.00*	*116.00*				
Chicago	** 98.00	101.00	88.00	105.00	112.00	115.00	110.00			139.00	139.00	22.45	27.37
	108.00	*103.00*	*108/110*	*110.00*	*112.00*	*113/114*	*120.00*	*120.00*	*120.00*				
Cincinnati	* 86.50	92.00	77.00	85.50	92.00	104.25	107.25	.....	.....	128.00	128.00	25.00	30.48
	96.50	*93.25*	*105.50*	*104.50*	*105.50*	*104.50*	*120.25*	*120.25*	*120.25*	.....	.....		
Cleveland	** 93.00	97.00	92.00	100.00	100.00	101.00	.....	.....	.....	.....	.....	25.37	30.93
			106.00	*107.00*	*107.00*	*107.00*	*119.50*	*119.50*	*119.50*				
Dallas	†† 70.00	80.00	65.00	69.00	69.00	69.00	130.00			130.00	130.00	18.72	22.80
Denver	* Not in stock		*119.25*	*125.50*	*125.50*	*125.50*	*125.00*	*157.75*	*140.50*	.....	.....	13.92	16.98
Detroit	‡ 112.00	116.00	105.00	112.00	118.00	118.00	.....	.....	.....	.....	.....	25.00	30.48
	89.50	*93.50*	*103.50*	*105.25*	*105.25*	*104.75*	*114.50*	*117.00*	*117.00*	.....	.....		
Kansas City	* 110.00	110.00	110.00	110.00	110.00	.....	.....	.....	.....	.....	.....	16.56	20.16
	122.00	*122.00*	*125.00*	*125.00*	*125.00*	*132.00*	*170.00*	*170.00*	*170.00*	.....	.....		
Los Angeles	‡ 97.00	97.00	97.00	97.00	97.00	97.00	*122.00*	*122.00*	*122.00*	.....	.....	16.61ab	20.25ab
Minneapolis	# 145.00	145.00	145.00	145.00	145.00	145.00	*165.00*	*165.00*	*165.00*	.....	.....	19.80	24.25
Montreal	ab 88.00	97.00	88.00	88.00	100.00	118.00	105.00	.....	.....	99.50	99.50	.....	.....
	165.00	*165.00*	*165.00*	*165.00*	*165.00*	.....	.....	.....	.....	.....	.....		
New Orleans	† 100.00	100.00	92.50	85.00	90.00	94.00	118.00			150.00	148.00	18.72	22.80
	† *106.50*	*102.50*	*115/120*	*116.50*	*116.50*	*116.50*	*115.00*	*122.00*	*122.00*				
New York	‡ 110.00	113.00	115/118	120/125	120/125	125/130	155/165			225.255	225/255	25.92	31.60
			Range from $120.00 to $125.00				*140/165*	*150/160*	*150/160*				
New York	** 88.00	90.00	73.00	90.00	92.00	95.00	91.50			175.00	240.00	.....	.....
	96.00	*96.00*	*104.00*	*105.00*	*106.00*	*107.00*	*105.50*	*127.00*	*127.00*				
Philadelphia	‡	Range from $110.00 to $127.00				110/127	110/127			210/220	210/220	25.92	31.60
		Range from $128.00 to $165.00				*125/138*	*135/145*	*150.00*	*150.00*				
Pittsburgh	†	Range from $95.00 to $100.00					120.00			120.00	130.00	25.92	31.60
	120.00	*120.00*	*120.00*	*120.00*	*120.00*	*120.00*	*135.00*	*145.00*	*160.00*	.....	.....		
St. Louis	†e109.50e	111.50e	106.00d	118.00d	124/125	129/137	.....	.....	.....	.....	.....	18.72	22.80
		.....	*118.00*	*127.00e*	*127.00e*	*129/131*	*174.00e*	*167.00*	*179.00*	.....	.....		
San Francisco	A† *83.00*	*83.00*	*84.00*	*84.00*	*83.00*	*84.00*	*84.00*	*86.00*	*86.00*	.....	.....	12.22	14.91a
Seattle	† *76.00*	*76.00*	*76.00*	*76.00*	*76.00*	*76.00*	*78.00*	*85.00*	*85.00*	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. †† Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* a Spruce b Tax exempt. c 5M lots. d 8–12 ft. lengths. e 8–16 ft. lengths. g No. 1 common. i 8 ft. lengths. k No. 3 common. n #3. A Rail freight rate from North west mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock.

For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¾", $171.00; on ½", $191.00. Exterior plyform ⅜" $190.00, ¼" $212.00. For other centers add rail freight increment from table on proper size Oiling and edge sealing charges included. a Lower rate by water shipment b 50,000 lb. minimum.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1958a Single or Double Thickness A quality	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1958a Single or Double Thickness B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*	
Atlanta	79%	80%	$0.2365	Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% per 100 lbs. in U.S.; $1.75 higher in Canada.
Baltimore	78%d	80%d	.2365	
Birmingham	83%	83%	.1840	
Boston	77–10%	77–10%	.2365	
Chicago	76%	76%	.2365	
Cincinnati	76%	76%	.2365	
Cleveland	76–10–10%	76–10–10%	.2765	
Dallas	75%	75%	.2440	
Denver	79%	79%	.2415	
Detroit	78–10–10%	78–10–10%	.2365	
Kansas City	80–10%	80–10%	.2415	
Los Angeles	78%	78%	.2390	
Minneapolis	75–10%	75–10%	.2415	
Montreal	40–5%bc	40–10–5%b	21.35h	
New Orleans	78%	79%	.2415	
New York	80–10%	80–10%	.2975g	
Philadelphia	77%	79%	.2365	
Pittsburgh	80%	80%	.2090	
St. Louis	80–10%	80–10%	.2415	
San Francisco	70%	70%	.2365	
Seattle	78%	76%	.2390	

Glass; a Jobbers' list price per box, 14 x 20, m, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. b Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. c Single thickness. d Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. h F.o.b. Belcoil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.10.

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 – .1965	.2215–.229	.2415–.249
Rocky Mtn. States	.189 – .2015	.2215–.229	.2415–.254
Pacific N. W. States	.1865–.199	.219 – .2315	.239 – .2515
Pacific S. W. States	.184 – .1915	.2165–.219	.2365–.2415

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.—2-ft. from butt	6-in.	91 to 100-ft.	....	....
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.80/.88	....
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.78/.88	.98
14-in.—2-ft. from butt	6-in.	80 to 85-ft.	.83/.93	.94
14-in.—2-ft. from butt	6-in.	85 to 89-ft.	....	1.00
14-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	1.09

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:

		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak??	....	....	....	....
	Pine	....	....	....	....
New York	S. L. Sap Pine	$2.00	$4.00	$3.00	$5.00
	Mixed Oak	2.50	4.50	3.50	5.50
Birmingham	Hardwood:	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	....	3.20a	....	4.10/4.20a
Los Angeles	Douglas Fir	....	....	....	....
	Redwood:	....	....	....	....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	2.15	....	2.45	....
	Red Oak	2.05	2.60a	2.30	3.00a
	Sap Pine or Cypress	....	2.50a	....	2.85a
San Francisco	Douglas Fir	2.08e/	3.08e/	2.73h/	3.93e/
Montreal	Birch or Maple	....h	....h	....h	....h

Tr.—Treated; Untr.—Untreated. a Creosoted. b 7" x 9" x 9', c Empty cell. e Green. f F.o.b. cars. h No constant price available. i Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb, f.o.b. works	.095
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	27.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.70
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.35

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	16x12x12 in.	12x12x12 in.	BRICK Per M. in quantity, Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.00	$327.00	$342.00	$381.00	$27.38	$27.38	$19.00	$17.50	$.....
Baltimore	186.00	198.35	372.00	421.50	549.00	627.00	36.00k	41.00k	32.00	21.50	.....
Birmingham	126.00p	136.00g	.....	284.00p	.....	.....	26.50ff	32.50gg	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	283.25†	.....	.....	36.85p	39.85p	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	26.00	28.00	31.00	27.00	.....
Cincinnati	185.00j	195.00j	360.00ddd	.....	.....	.....	45.00j	46.00j	26.00j	26.00j	.....
Cleveland	170.00**	181.00**	.....	.....	.....	.....	34.50	34.50	28.25	23.25	23.00qq
Dallas	.....	118.00	.....	.....	.....	.....	19.75	32.25	22.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	41.00	34.80kk	28.00kk	34.00kk
Detroit	180.00	188.00	359.00	.....	515.00	560.00	37.75cc	38.50cc	34.00	30.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	28.50	.....	32.00	26.00	28.50
Los Angeles	r	r	r	r	r	r	27.50§	.....	34.00	34.00	35.00
Minneapolis	175.00p	196.00p	407.00p	196.00p	.....	.....	35.00y	45.00	40.00kk	30.00kk	42.00kkdo
Montreal	165.00ag	181.00au	325.00au	250.00	248.00v	.....	39.50	46.00	34.80	22.00	13.75w
New Orleans	170.00	170.00r	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	147.30h	157.10h	216.00eh	258.10hn	.....	.....	40.00	.....	38.00	32.00	.....
Philadelphia	156.30	166.80	312.70	375.20	.....	.....	30/34	38/42	25.00	23.00	2.97
Pittsburgh	138.00	151.00	260.00	228.00	297.00	341.00	36.00	46.00g	25.00	23.00	2.97m
St. Louis	147.00cc	168.50cc	338.25cc	465.00cc	439.00	621.80	40.00al	38.80s	.90aaa	.75aaa	1.25aaapso
San Francisco	156.85o*	177.10o*	235.90ddo*	.....	.....	.....	37.00	.....	26.60	26.60	2.65m
Seattle	223.00ar	230.00cc	320.00	240.00acw	.....	.....	34.00s	49.00s	42.00aAh	37.80	3.90mAh

† F.o.b. yard Roxbury. a Smooth. b Per 50 lb. bags. c 6 x 12 x 12 in.-8 cell. d Pulverized hot. e 8%, 10th following month. f Truck load or over. h F.o.b. trucks, job site N.Y.C. j Red face. m Per bbl., 180 lb. n 7½ x 7½ x 12. Speed title. p Truck lots. q Provincial and Municipal tax extra. r Not used because of earthquake danger. s 2% discount for cash. t 5½ x 8 x 11½. u Tax exempt. v Sand lime. w 5 x 8 x 12. y Stacked. z Pebble lime price per 80 lb. sack. aa Price per sack. Lime not sold per ton. bb LCL. cc Truck delivery. dd 6 x 12 x 12. ee Pebble lime. ff 80% common. gg Select. hh LCL. ii F.o.b. yard. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 500-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases In oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES: Carload lots f.o.b. factory Rolls, slate surfaced, 55-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 300 lb. bbl. per ton
Atlanta	$17.75	$28.275	$3.26	$3.51	$3.01	$2.74	$3.01	$2.98	$0.405	$39.75
Baltimore	17.50	27.90	2.75	4.25	3.35	2.66	4.43	4.43	.47	45.00
Birmingham	17.75	28.275	3.90	3.40	....	2.93	2.93	2.93	....	42.00ee
Boston	17.50	27.90	....	....	....	2.97cg	2.82cg	2.82cg	.42g	50.50o
Chicago	17.50	27.90	....	....	....	2.91‡u	2.86‡o	2.86‡o	40.00‡bb	50.00‡
Cincinnati	17.50	27.90	....	....	....	2.65	2.46	2.46	.46g	49.36
Cleveland	17.50	27.90	2.31yyy	2.87gg	2.60gg	2.65q	2.46o	2.46o	.40g	42.70AA
Dallas	17.75	28.65	....	4.05	....	3.50q	3.75s	4.35e	.36	58.50AA
Denver	18.00	28.40	3.29	5.15	3.04	2.65	2.25e	2.35e	.43ff	45.00
Detroit	17.50	27.90	3.35	3.35	2.80	2.65	2.46f	2.46	.50	44.00
Kansas City	17.50	28.65	3.45	3.00gs	2.65	3.32	3.00e	3.00e	.43	57.00
Los Angeles	17.50	28.15	3.30e	4.50e	4.20e	3.10e	2.00ee	f	.64e	f
Minneapolis	17.50	29.25/28.02	....	....	....	2.65ddd	2.46hhddd	2.46hhddd	.44hhddd	44.00r
Montreal	....	20.05	3.95ppp	4.05ppp	3.25ppp	4.00f	3.65f	3.65f	1.00gf	3.30hi
New York	17.50	27.90	....	....	....	2.65e	2.46e,o	2.46e,o	.44e,s	44.00e
Philadelphia	17.50	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	17.50	27.90	2.65	2.85	3.15	2.75	2.50s	2.50s	.38	48.00
St. Louis	17.50	27.90	....	....	....	2.50	2.46h	2.46h	.40g	48.45
San Francisco	17.50	28.15	2.40	....	3.40	2.95	4.00aa	....	.40	....
Seattle	17.50	28.40	3.07mcc	3.93mcc	....	3.58mcc	3.05hmcc	....	.59mcc	52.00mcc

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. a Red lead prices change frequently due to pig lead price changes. b U. S. War Dept. Spec. 3-49A. c ASTM Spec. D266-31. d 80% minimum ferric oxide. e 15 lb. f Per 432 sq. ft. g F.o.b. yard, Roxbury. h Per roll. 65 lb. i Net carload lot prices; Minneapolis and vicinity. k Per cwt. l Not used. m 1% discount for cash. n F.o.b. city. o Per 60-lb. p 6-drum, 50 gal. ea. q Per 60-lb. roll. r F.o.b. factory, Chicago. s 468 Med. t Federal tax included. u Per 90 lb. square. v Per ton. w Price to large paint contractors is $1.25 less x Mineral surfaced. y 55-gallon container. z Drums. aa Approximate cost per 100 lbs. bb Roofers coating and cement; Price per ton. cc LCL, truck delivery. dd 2% cash discount. ee Asphalt pitch in 100 lb. package. ff 5-gal. drums. gg F.o.b. factory. hh Incl. freight. D. Std Black. E. Ready-mixed. F. Over 80% ferric oxide. * Aver. wt. approx. 425 to 550 lbs. drum. # Freight allowed to destination not exceeding .50 cwt.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Brick-layers	Car-penters	Struct. Iron Workers	Hoisting Engineers	Plas-terers	Electrical Workers	Steam-fitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.10	$2.50	$2.85	$2.60	$2.90	$2.75	$2.90	$1.33	$1.33
Baltimore	3.20d	2.75	3.275f	3.10/3.25	3.075f	2.975	2.975f	1.675f	1.675f
Birmingham	3.25	2.50	2.025h	2.52	2.72	3.00	3.025h	1.375	1.475
Boston	3.185e	2.75	2.275j	3.20	3.30f	3.138	3.10d	2.14l	2.14l
Chicago	3.55h	3.30e	3.375m	3.15m	3.625n	3.53l	3.30e	2.80h	2.80h
Cincinnati	3.325	3.075	3.115h	2.85/3.10	3.10	3.28gg	3.355V	2.12	2.02
Cleveland	3.375l	3.325d	3.326j	3.175	3.275	3.326	3.325d	2.575	2.575
Dallas	3.50	2.75	2.875	2.75	3.437	3.00	3.00l	1.45	1.45
Denver	3.50	3.05	2.85	2.75	3.30	3.00	3.05	1.875	1.875
Detroit	3.45ee	3.21e,X	3.33e	3.20e	3.40dl	3.52gg	3.125h	2.45e	2.45e
Kansas City	3.025	2.75	2.90	2.725/2.97	3.25	3.14e	3.075ee	2.08	2.08
Los Angeles	3.40	2.825ee	3.175h	2.72d	3.55ee	3.20	3.35e	2.15f	2.15f
Minneapolis	3.225	2.80	2.97	2.75	3.00	3.15n	3.00	2.05	2.05
New Orleans	3.10	2.52	2.90ee	2.70	2.725	3.00g	3.00e	1.425	1.425
New York	4.15hr	3.57kl	3.975e	3.84f	4.15d	3.63aaf	3.815hL	2.415f	2.415f
Philadelphia	3.02i	3.20	3.63kM	2.975/3.72e	3.6253	3.65ee	3.615e	1.95	2.35
Pittsburgh	3.625h	3.20h	3.225h	3.35h	3.30e	3.50	3.375h	2.10h	2.10h
St. Louis	3.62c	3.125h	3.10h	3.125h	3.25e	3.50c	3.39gg	2.175e	2.175e
San Francisco	3.65e	2.98h	3.175h	2.835e	3.50eh	3.30 U	3.35K	2.15h	2.15h
Seattle	3.40d	2.75d	2.95d	2.78	3.25d	3.06 X	3.28gg	2.35d	2.35d
Montreal*†	2.00	1.80	1.90	1.70	2.00	1.90	1.90	1.25	1.40

* Cost of living bonus now included in basic wage. # Includes 5¢/hr tool replacement. † Plus 2% vacation pay.

a 6 hr. day. b 7 hr. day. c Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. d Incl. 10¢ H&WF. e Incl. 10¢ VF. f Incl. 6% WF. g Incl. 11½¢ WF & 2.725 homes & housing plus 7½¢ WF. h Incl. 17¢ WF i Incl. 10½¢/hr. WF. j Incl. 7½¢/hr. WF. k Incl. 4% VF. m Incl. 5¢/hr WF. n Incl. 25¢ H, W. Ins., Vac. & Retirement. o Incl. 10¢ PF. 7¢ WF. p Incl. 3% WF, 3% PF. r Incl. 4% WF and 20¢ PF. s Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. t Incl. 7½¢ H&WF. u Incl. 1½% PF. v Incl. 10¢ WF. w Negotiating. x Incl. 8¢ WF. y Incl. 22½¢ WF. z Incl. 7½¢ IF, 5¢ H&WF. A Incl. 15¢ WF, 15¢ PF & 20¢ B.F. B Incl. 3% WF, C Incl. 2½¢ H&WF. D Plus 6% WF, plus travel pay per day. F Plus $4/per day Annuity contrib. G Incl. 7¢ WF, 6% VF. I Incl. 15¢ H&WF. J Incl. 5% WF, 6PH. K Incl. 10¢ WF, 12½¢ VF, 7½¢ PF. L Incl. 3% WF, 3% PF, 2% VF, 1% EF. M Incl. 7½¢ PF. N Incl. 1% WF. O Incl. 2% WF, 1% PF. R Incl. 12¢ WF and 1¢ apprentice. S Incl. 12½¢ H and WF. T Incl. 21¢ H, W & VF. U Incl. 7½¢ WF, 4% VF, 1% PF. V Incl. 8½¢ WF. W Incl. 2% VF. X Incl. 6¢ VF. Y Incl. 7¢ H & WF.

MEXICO CITY PRICES

In Pesos, F.a.b. City		Sept '54	Oct '54
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Skilled Labor Wages			
Carpenters (8 hr. day) 1 el.	av. per hr.	2.25	2.25
Bricklayers (8 hr. day) 1 el.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day) ..... Remachadores.	av. per hr.	1.37*	1.37*
Struct. Steel Shapes 3"-15" x 12 meters	per metric ton	1428.62	1428.62
Reinf. Steel, Corr. Rods ⅜" x 11 meters	per ton	1490.00	1490.00
½" x 11 meters	per ton	1490.00	1490.00
⅝" x 11 meters	per ton	1490.00	1490.00
¾" x 11 meters	per ton	1490.00	1490.00
⅞" x 11 meters	per ton	1490.00	1490.00
1" x 11 meters	per ton	1490.00	1490.00
Gravel truck load of 3½ cu. meters Blue Gravel	per tr. load	69.00	69.00
Rose Gravel	per tr. load	62.00	62.00
Cement, Std. Port. (Toltica)	per ton	160.00	160.00
Lumber 3rd Class Pine	per M ft.	850.00	850.00
1st Class Pine	per M ft.	1500.00	1500.00
2nd Class Pine	per M ft.	1300.00	1300.00

* 1st & 2nd floors. Aver rate $4.38

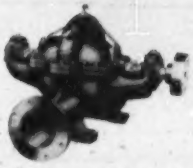
ENR Skilled Average: (Bricklayers, Carpenters, Iron workers): $3.184 **ENR Common Average:** $2.022

How to Save

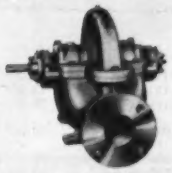
TIME \ MONEY \ ENERGY

TYPE PE FLUIDYNE INTEGRAL HP PUMPS
A complete line of electric close-coupled general purpose pumps. Threaded or flanged connections. Capacities: to 800 gpm; heads: up to 260 feet; motors: up to 50 h.p.

TYPE PB FLUIDYNE GENERAL PURPOSE PUMPS
Flexible coupled, single-stage, end suction, general purpose pumps. Rugged and durable. Capacities: up to 5500 gpm; heads: up to 260 feet; motor: up to 150 h.p.



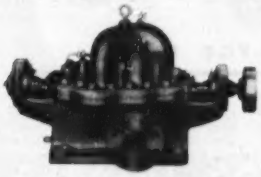
TYPE A GENERAL PURPOSE PUMPS
For application to the widest variety of pumping conditions. Single stage split case design. Capacities: up to 70,000 gpm; heads: to 300 feet. All types of drive.



TYPE AS GENERAL PURPOSE PUMP
The centrifugal pump with mechanical shaft seals that eliminate the packing box. Up to 4" in discharge sizes. Capacities: up to 750 gpm; heads up to 210 feet.

BY BUYING FROM THE COMPLETE LINE

VERTICAL DEEP WELL TURBINE PUMPS
For application to deep well pumping. Lifts from 1000 feet or more. Capacities: up to 30,000 gpm. H.P. range: up to 1000 h.p. oil and water lubricated types. Widest range of sizes.



TYPE TU BOILER FEED AND PROCESS PUMP
2-stage high pressure pump for water and other liquids. Capacity: 50 to 3500 gpm; heads: up to 600 feet. Internal cross over is built into top half of pump case.

TYPE TUT MULTI-STAGE PUMPS
3, 4 and 5-stage pumps for water handling and process services. 1" to 5" discharge sizes. Capacity: up to 1350 gpm; head range: up to 1600 feet. Split case design.

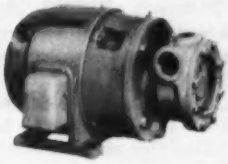
INDUSTRIAL SERVICE PUMPS
For application to pits, sumps, basins, reservoirs and other surface water sources. Same capacity as deep well turbine above. H.P. range: up to 2500 h.p.

HYDRO-LINE PUMPS
An enclosed, close-coupled, vertical centrifugal process pump for handling petroleum hydrocarbons, where NPSH is limited. Capacities: to 6000 gpm; heads: to 1500 feet.

HI-LIFT PUMPS
The unique positive displacement deep well pump that literally squeezes water upward. Capacity: 10 to 55 gpm; lifts: up to 1000 feet. For wells 4" in diam. and up.

PEERLESS PUMP

DISTRIBUTORS & SALES OFFICES *Everywhere!*



TYPE TVE & TVB TURBINE VANE PUMPS
Standard and self-priming, close-coupled and flexible-coupled pumps for hot and cold, clear and vaporous liquids. Capacities: up to 58 gpm; heads: up to 800 feet.

SELF-PRIMING PUMPS
Rugged, compact, portable self-priming pumps manufactured to AGC specifications, seven models and types to choose from providing 4,000 to 30,000 gallons per hour.

FOR ALL YOUR PUMPS FOR ALL YOUR NEEDS—LOOK TO PEERLESS FOR:

THE COMPLETE LINE—
THE QUALITY LINE—
THE DEPENDABLE LINE—
THE ECONOMICAL LINE—
THE TIME-SAVING LINE!

PEERLESS PUMP

fmc®

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FOOD MACHINERY AND CHEMICAL CORPOPORATION
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☐ TYPE PE B-2300 ☐ TYPE PB B-2300 ☐ TYPE A B-1300 ☐ TYPE AS B-1350 ☐ TURBINE PUMP B-141
☐ TYPE TU B-1400 ☐ TYPE TUT B-1400 ☐ INDUS. SERVICE B-100 ☐ HYDRO. LINE B-1700
☐ HI-LIFT B-142 ☐ TURBINE VANE B-2205 ☐ SELF-PRIMING B-2000

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ADDRESS_____

CITY_____ STATE_____

ENR

BUILDING BOARD & LATH, INSULATION AND WATER TUBING—DELIVERED, TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	GYPSUM PLASTER BOARD tapered edge per Msq ft ⅜"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION batts, vap barr per Msq ft 3"	COPPER WATER TUBING—TYPE L, 2000 ft lots per ft[a] ⅜"	COPPER WATER TUBING—TYPE L, 2000 ft lots per ft[a] ½"
Atlanta										
Baltimore	$45.50[b]	$41.00[c]	$31.00[c]	$52.50[c]	$92.00[c]	$104.00[c]	$66.00[c]	$70.00[c]	$0.1449	$0.2029
Birmingham	67.00	56.00	0.42[b]	67.50	62.00	92.00	79.00	62.00	0.1647	0.2307
Boston	46.50[c]	41.00[c]	31.50[c]	48.00[c]	64.00[c]	109.00[c]	72.00[d]	0.07/075[b]	0.1449	0.2029
Chicago	67.00	50.00	34.00	50.00	77.00	113.00	73.00	84.00	0.1449	0.2029
Cincinnati	44.01[c]	38.08[c]	30.08[c]	45.51[c]	59.00[c]	98.50[c]	58.50[c]	61.00[c]	0.145	0.203
Cleveland	45.50	36.50	36.50	75.00	75.00	110.75	75.00	75.00	14.49/	20.29/
Dallas	55.00	52.50	40.00	82.50	73.50	122.50	70.00	91.50	0.1449	0.2029
Denver	60.00	52.50	40.00	60.00	73.00	123.00	73.00	71.00[m]	0.1449	0.2029
Detroit	55.00	48.00	35.75	49.50	54.00[e]	91.00[e]	53.00[e]	61.00[dn]	n.a.	23.82[f]
Kansas City	55.00	55.00	42.00	65.00	75.00	120.00	75.00	82.00	0.2029	0.2468
Los Angeles	50.00	45.00	0.31[b]	53.00	71.87	121.25	70.00	80.00	0.2029	0.2468
Minneapolis	64.00	75.00	0.40[b]	65.00	70.00	114.00	70.00	78.00	0.1375[b]	0.1925[b]
Montreal	58.00	.....	39.00	64.00	.....	.....	.....	.....	.....	.....
New Orleans	65.00	50/55	45.00	65/70	65.00	100/115	70.00	75/80	.....	.....
New York	50.00	44.50	34.00	51.00	65.00	108.00	65.00	72.00[p]	14.49/	20.29/
Philadelphia	50.00	48.00	34.00	48.50	67.50	105.00	49.20	73.00	14.49/	20.29/
Pittsburgh	55.00	65.00	40.00	58.00	60.00	102.50	57.50	68.00	0.23	0.28
St. Louis	60.00	50.00	45.00	60.00	70.00	115.00	75.00	75.00	0.2029[c]	0.2468[f]
San Francisco	49.00[c]	41.50[c]	0.33[b]	53.00[c]	.....	94.00	60.25	66.50	0.1449	0.2029
Seattle	57.00	50.50	40.00	50.00	71.40	120.35	70.20	86.00	0.1449	0.2029

[a] fob city [b] sq yd [c] carloads [d] 4', fob Alexandria, Ind [e] 56,000 sq ft up quantity [f] per 100 ft [g] full trailer loads [h] 10,000 ft & over [i] 2,000–10,000 ft: 10,000 ft up: $0.1925/ft [j] 2,000–10,000 ft; 10,000 ft up: $0.2342/ft [k] sq ft 2-in: 6½¢/sq ft [l] LCL [m] flameproof: $75.00/M sq ft [n] 11,000 sq ft up quantity [o] plain core; asph core: $58/M sq ft [p] 2-in: $52/M sq ft [q] ⅛" O.D. [r] ⅜" O.D. [s] 10 ton quantities [t] distributor's siding

PREFABRICATED, INSULATED METAL WALL PANELS—FOB PLANT

	3¼" thick 24" wide, 1½" glass fiber insulation, fluted surface			3" thick, 16" wide, glass fiber filled, flush surface		3¼" thick, 24" wide, 1½" gl fib ins, flush surface		1⅛" thick, 1½" gl fib ins, 20 ga gal stl back, flush surf			3¼" thick, 1½" gl fib ins, 18 ga gal stl back, fluted surf		
Surface	Zn-coat stl, 20 ga	Alum 16 ga	Stainless stl, 20 ga	Carbon steel	Aluminum	Carbon steel	Aluminum	Gal steel	Enam steel	Aluminum	Gal steel	Enam steel	Aluminum
$ per sq ft	1.70[a]	2.10[a]	3.10[a]	1.20[b]	1.65[b]	1.20[a]	1.50[a]	1.15[d]	1.18[d]	1.61[d]	1.25[d]	1.20[d]	1.60[d]
"U" factor†	0.18	0.16	0.17	0.20	0.20	0.13	0.13	0.40	0.40	0.40	0.15	0.15	0.15

[a] Q-type panels, Erected; based on quantities of 3000 sq ft or more; price depends on amount of fabrication involved [b] "C"-type fob plant Baltimore, Md [c] F-type fob plant Pittsburgh, Pa [d] fob plant Detroit, based on quantities of 10,000 sq ft or more † coefficient of heat transmission, air to air, outside wall

PORCELAIN-ENAMEL STEEL FACE, COATED STEEL BACK[a]									ASBESTOS CEMENT FACE[b]				FIELD ASSEMBLED[c]		
	Insulrock core			Gl fib core bet 2 shts ½" asb cem bd	Gl fib core ½" alum honeycomb		Foamglas core, ½" alum hc		Insulation bd core bet 2 shts ½" asb cem bd				3¼" thick, 2' wide, 1½" gl fib ins, zn-coat stl back, fluted surface		
Core thick	¾"	1⅜"	1⅞"	1"	⅞"	1½"	1½"	2"	¾"	⅞"	1⅛"	1⅜"			
Surface	Porcelain-enamel steel								Asbestos cement board				Zn-coat 20 ga stl	Alum 16 ga B&S	Galbestos V-bm mar
$ per sq ft	2.00	2.30	2.39	2.70	3.00	3.10	3.15	3.35	0.26	0.32	0.38	0.44	1.50	1.90	1.40
"U" factor†	0.35	0.25	0.19	0.20	0.20	0.15	0.21	0.16	0.47	0.29	0.21	0.17	0.18	0.16	0.16

[a] fob plant, Long Is. City, N.Y. [b] fob plant, Billerica, Mass; based on 5-ton quantities [c] G-Type, Erected † coefficient of heat transmission, air to air, outside wall

EQUIPMENT OPERATOR WAGE RATES

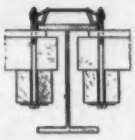
ENR 20-Cities	Truck drivers 1½ T	Truck drivers —4 cy Dump	Truck drivers +4 cy	Tractor Operators incl bulldozers 34–49 hp	Tractor Operators incl bulldozers 70–100 hp	Tractor Operators incl bulldozers 100 & over	Tractor scraper 15–16 cy	Power cranes & shovels ½ cy	Power cranes & shovels ¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	1.35	1.60	1.60	2.35	2.395	2.235	2.225	2.90	2.90	2.225	1.90	1.50
Baltimore	1.65[a]	1.80[a]	1.90[a]	2.25	2.25	2.25	2.25	3.10[b]	3.10[b]	2.25	3.10[b]	2.25
Birmingham	1.37	1.65	1.92	2.385	2.385	2.385	2.525	2.525	2.525	2.385	2.11	1.45
Boston	1.945[c]	.....	.....	2.825[d]	2.825[d]	2.825[d]	2.825[d]	3.20	3.20	3.20	2.555	2.18[a]
Chicago	1.90[f]	.....	.....	2.85[a]	3.00[b]	2.90[a]	2.70	3.30	3.30	2.80	2.80	.....
Cincinnati	2.00[f]	2.00[f]	2.00[f]	2.85	2.85	2.85	2.85	3.10	3.10	3.10	3.10	3.10
Cleveland	2.42	2.42	2.42	3.05	3.05	3.05	3.05	3.30	3.30	3.05	2.925[b]	2.925
Dallas	1.45	1.45	1.45	1.45/2.625[f]	1.50/2.625[f]	1.50/2.625[f]	1.50/2.625[f]	1.50/2.625[f]	1.60/2.625[f]	1.50/2.625[f]	1.45/2.00[f]	1.45/1.55[f]
Denver	2.00	2.00	2.10	2.60	2.61	2.61	2.61	2.78	2.78	2.61	2.61	2.225
Detroit	2.31[a]	2.31[a]	2.31[a]	3.20[m]	3.20[m]	3.20[m]	3.20[m]	3.20[m]	3.20[m]	3.20[m]	2.925[m]	.....
Kansas City	1.965[a]	2.065[a]	2.065[a]	2.175	2.725[a]	2.725[a]	2.725[a]	2.97	2.97	2.585[a]	2.725[f]	2.115
Los Angeles	2.225[a]	2.225[a]	2.285[a]	2.80[m]	2.80[m]	2.80[m]	3.21[m]	3.03[m]	3.03[m]	2.94[m]	2.50[m]	2.41[m]
Minneapolis	2.05	2.05[a]	2.20[a]	2.43	2.65[a]	2.87[a]	2.65	2.87[a]	3.13[a]	2.43	2.32	2.15
New Orleans	1.525	1.525	1.525	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.10	1.60
New York	2.12½[cc]	2.52[h]	2.52[h]	3.176[cc]	3.176[cc]	3.176[cc]	3.31[cc]	4.095[cc]	4.095[cc]	3.31[cc]	3.31[cc]	2.78[cc]
Philadelphia	1.825/2.025[a]	1.825/2.025[a]	1.825/2.025[a]	2.97/3.72[m]	2.97/3.72[m]	2.97/3.72[m]	2.97/3.72[m]	2.97/3.72[m]	2.97/3.72[m]	2.97/3.72[m]	2.79[m]	1.95[m]
Pittsburgh	2.125	2.125	2.125	2.875	3.125	3.175	3.175	3.275	3.275	3.175	3.175	2.125
St. Louis	2.10	2.10	2.10	3.125[a]	3.125[a]	3.125[a]	3.125[a]	3.125[a]	3.125[a]	3.125[a]	2.525[a]	2.10
San Francisco	2.10	2.10	2.33[a]	2.845	2.845	2.845	2.845	3.175	3.175	3.005	2.455	2.175
Seattle	2.405[a]	2.405[cd]	2.605[cc]	2.53	2.73	2.73	2.73	3.08	3.08	2.83	2.53[a]	2.40
Montreal	1.25	1.35	1.25	1.63	1.63	1.63	1.63	1.89	1.89	1.62	1.70	1.50

[a] incl 5¢/hr HWF [b] straight time, broken, $3.25 [c] 2-axle; 10-wheel $2.00; Euclid $2.20 [d] intermediate [e] bldg constr; highway $2.075 [f] less than 2-t [g] blade [h] scoop, bldg [i] scoop, road [j] plus $2 pd by employer for hosp, death benefits to family [k] bldg constr; steel constr $3.30 [l] higher rates are union, other taken from min wage scale approved by County Commissioners Court [m] incl 10¢ H&WF [n] flatbed [o] excavating [p] flatbed & bard math 2½-t [q] over 50 hp [r] blade grader [s] form and subgrade [t] single [u] incl 7½¢ HWF [v] up to 6 cy [w] 6–8 cy [x] cat oper [y] up to 3½ cy [z] 3½ cy & over [aa] applies to local 807 [bb] incl 3% WF, 2% PF, 11 PH [cc] incl 5% WF [dd] up to 5 cy [ee] 5 cy & over

SUPERIOR ACCESSORIES ON THE BEAM

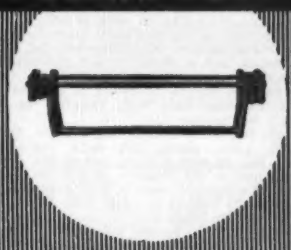
Designed to meet field conditions on BRIDGE SUPERSTRUCTURES, these three types of Hangers provide efficient means for hanging forms from steel beams and girders, not fireproofed.

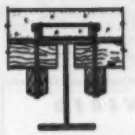
STANDARD COIL HANGER FRAME



When hanging forms where specifications do not permit any hanger wire to be exposed after stripping, use Superior *Standard* Hanger Frames. Detail at left shows their use with double ledgers, ½" coil bolts, and flat washers. Total safe load on both bolts is 10,000 lbs., or 5,000 lbs. per bolt.

SPECIAL COIL HANGER FRAME



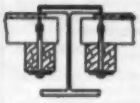


AT LOW HAUNCH

AT HIGH HAUNCH

The design of certain bridge superstructures allows for the permanent deflection of the beams or girders due to the pre-calculated dead load. This deflection is compensated by a concrete haunch on the upper flange, which varies in depth. Superior *Special* Coil Hanger Frames were developed to efficiently meet this field condition, at the same time avoiding any exposed hanger wire. The extent to which the ½" Coil Bolts are threaded into the coils allows for these varying haunch depths from maximum to zero. (See detail at left.) Total safe load per frame is 10,000 lbs., or 5,000 lbs. per ½" bolt.

COIL BEAM SADDLE



Superior Coil Beam Saddles are used, as shown at left, where hanger wires may be cut after stripping the forms. The Coil Bolts allow for any variation in lumber and flange thickness and tightening the bolts pulls the forms tightly against the flanges. Forms are easily stripped. Safe load is 6,000 lbs. per saddle, or 3,000 lbs. for each ½" Coil Bolt. Coil Beam Saddles are also furnished for ¾" and 1" bolts.

NOTE: WORKING PARTS (Bolts and Washers) are returnable. Layouts and estimates for Superior Hangers are available without cost or obligation.

SUPERIOR CONCRETE ACCESSORIES, INC.
4110 Wrightwood Avenue, Chicago 39, Illinois
New York Office: 1775 Broadway, New York 19, N. Y.
Pacific Coast Plant: 2100 Williams St., San Leandro, Calif.

FOR ADDITIONAL INFORMATION . . . Request A Copy Of 4-PAGE BULLETIN FH-2

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Mass., Boston**—BA 11/9—Dist. P. Wks. Office, IND, 495 Summer St., Boston, Zone 10, renewal water lines, Bldgs. 36 and 37, Naval Receiving Station, NOY 86281, Spec. 43323. Plans deposit $10.

† **Mass., Squantum**—BUILDINGS—BA 11/9—Dist. P. Wks. Office, IND, 495 Summer St., Boston, Zone 10, repairs to bldgs., U. S. Naval Air Station (inactive), NOY 86103, Spec. 44847 (SF).

SOON LETS CONTRACT—BUILDINGS

▲ **Mass., Natick**—FERMENTATION—Carling's Brewer, O. I. Powell, owner's agt., 9400 Quincy Ave., Cleveland, O. and Canadian Breweries, Ltd., 285 Victoria St., Toronto, Ont., Can., soon let contract 5 story fermentation bldg., 4 story, 50x250 ft. brewhouse, power plant, $15,000,000. CD 10/14.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Bradford Weston, Inc., 116 Rockland St., Hingham, Mass. LB $83,400, est. $90,000. stone mound, Scituate Harbor, Scituate, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids Oct. 19. CD 10/11.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Suburban Excavators, 104 Elm St., Wakefield, Mass. LB $79,762, est. $90,000. ly., Newton. Bids Oct. 19. CD 10/6.

▲ **The Foundation Co.**, 37 William St., New York, N. Y., LB, $2,738,000, est. $2,500,000, rebuilding viaduct between Fairfield Ave. and Union Square, BRIDGEPORT, CONN. New York, New Haven & Hartford R. R. Co., T. P. Poison, ch. engr., 54 Meadow St., New Haven 6, Conn.

BUILDINGS

LOW BIDS AND CONTRACTS

A. F. Smiley Constr. Co., 115 Trenton St., Pawtucket, R. I., CA Approx. $350,000. DORMITORY, Colgate Hall, NEW LONDON, N. H. Colby Junior College, New London, N. H. Bids Oct. 14. CD 10/1.

† **Hadley Constr. Co.**, 51 Sagamore Ave. W., Medford, Mass. LB $803,177. 2 army BARRACKS, Fort Devens, ENG-19-016-55-21, AYER, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Oct. 22. CD 9/20.

▲ **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass. CA $2,644,522. E-409, Contr. 1 Westfield State Teachers' COLLEGE, Upper Western Ave., WESTFIELD, MASS. State, Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. CD 9/14, under LB.

Rich Brothers Constr. Co., 410 Park Square Bldg., Boston, Mass. LB $839,223, est. $800,000. high SCHOOL addn., WILMINGTON, MASS. Town, High School Bldg. Comn., Wilmington, Mass. Bids Oct. 21. CD 10/5.

▲ **Fusco-Amatruda Co.**, 59 Amity Rd., New Haven, Conn., LB, $1,369,000. HIGH SCHOOL, East St., PLAINVILLE, CONN. Town Bd. Educ., Plainville, Conn. Bids Oct. 21. CD 9/29.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **New York and New Jersey**—BA 11/10—U. S. Eng., 80 Lafayette St., New York 13, N. Y., dredging and rock removal from New York and New Jersey channels, Section 4, Rock Area 5, Serial No. CIVENG-30-075-55-21, Richmond and Union Counties. CD 11/24/52.

SOON LETS CONTRACT—BUILDINGS

▲ **Md., Baltimore**—PLANT—The Glidden Co., Berea and Madison Sts., Cleveland, O., soon lets contract titanium dioxide and sulphur acid plant, 4 bldgs., Total est. $10,000,000, Turpin, Wachter & Assoc., 1004 N. Charles St., engrs. CD 10/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,

Latrobe Road Constr. Co., Inc., Latrobe, Pa., CA $3,074,016. constr. 4.9 mi. (Sec. 35-E) of Northeastern Extens., Franconia and Salford Twps., Montgomery Co. Bids Sept. 30. CD 10/4, under LB.

▲ **Berlanti Constr. Co.**, 15 Oakland Ave., Harrison, N. Y. CA $574,733, Contr. No. 2, Belmont Hills Force Main Mill Creek Force Main and Gulley Run intercepting sewer;

Verona Constr. Co., 251½ Grove Ave., Verona, N. J., CA $415,412, Contr. No. 3, Gulph Creek Branch sewers, intercepting sewers and force main (Area No. 29);

Consolidated Constr. Co., 28 Cooper St., Woodbury, N. J. CA $351,700, Contr. 4, structural work, pumping stations at Glanraffon rock, Belmont Hills, Mill Creek, Ardmore, Gulph Creek and Cynwyd; CA $279,300, Contr. 5, mechanical work on pumping stations;

John R. Walker, Chalfont, Pa., CA $151,277, Contr. 6, electrical work on pumping stations. ARDMORE, PA. Grand total $1,772,422, Comrs. Lower Merion Twp., 75 E. Lancaster Ave., Ardmore, Pa. Bids Sept. 14. Awarded Oct. 20. CD 8/24.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

C. H. Lawson, Inc., Williamsburg, Va. and **Rea Constr. Co.**, Pineville Rd., Charlotte, N. C. LB $1,163,553. grading, drainage, surf. 2.39 mi. dual hy. Greenbelt Rd., 4 span steel beam underpass, Annapolis-Washington Expressway, Contr. P 721-2-315, Prince George Co. Bids Oct. 19. CD 10/7.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

T. Edgie Russell, Frederick, Md. LB $259,137. grading, drainage, surf. 2.53 mi. dual hy. White Plains southerly toward Lyons Corner, Contr. CH 257-10-520, Charles Co. Bids Oct. 13. CD 9/29.

Phillip D'Adamo Constr. Corp., 4105 Amos Ave., Baltimore 15, Md. LB $55,427. Items 1, 2, 3 and 6;

Wm. F. Chew & Co., Inc., Pikesville 8, Md. LB $36,460. Items 4 and 5, Contr. 397 D. S. & W group bids, various sections, TOWSON, MD. Comrs. Baltimore Co., Court House, Towson, Md. Bids Oct. 8. CD 9/28.

BUILDINGS

LOW BIDS AND CONTRACTS

Planet Constr. Co., 11 W. 42 St., New York, N. Y., CA, $681,500. Sunset Park District HEALTH CENTER, 514 to 534 49 St., BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Oct. 1. CD 9/21.

State, Dpt. P. Imprvts., 506 Park Ave., Baltimore 1, Md., rejected bids Aug. 19, masonry dormitory for women, State Teachers' College, BOWIE, MD. LB $312,938. CD 9/1, under LB.

Landover Constr. Co., Landover Hills, Md. Owner Builds. $670,000. 67 detached brick HOMES, 65 Ave. and Otis St., SILVER HILL, UPPER MARLBORO, MD. J. d'Epagnier, 1004 Riply St., Silver Spring, Md., archt.

▲ **Nathan Levin**, 923 15 St. N.W., Wash., D. C. Own Forces. $1,800,000. SHOPPING CENTER, Viers Mill Rd. and Randolph Rd., WHEATON, MD. Fen Montgomery, 8641 Colesville Rd., Silver Spring, Md., archt.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Tennessee**—BA 11/16—U. S. Eng., Box 97, Memphis, Zone 1, clearing, grubbing approx. 350 acres on Presidents Island in Memphis, Shelby Co., CIVENG-40-041-55-66.

Tenn., Nashville—BA 11/23—E. B. Smith, city purch. agt. City, Court House-City Hall Bldg., left bank downstream open-cut interceptor sewer, No. 54-SD-2. Plans deposit $35. Rice, Harwood & Clark, 903 American Trust Bldg., archts.-engrs.; adv. ENR 10/28. CD 3/28/52.

SOON LETS CONTRACT—BUILDINGS

La., Shreveport—SCHOOL—Caddo Parish School Bd., soon lets contract 1 story, Junior High School Hollywood, Union and Mansfield Rd. $900,000. J. Cheshire Peyton, 502 Continental-American Bank Bldg., archt. CD 10/13/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

VIRGINIA—Commonwealth of Virginia, Dpt. Hys., Central Office Bldg., 1221 E. Broad St., Richmond

Whiting Turner Contg. Co., Natl. Marine Bank Bldg., Baltimore, Md., LB $111,552 redecking James River lift span, Chuckatuck and Nansemond Bascule Spans, at Newport News, Nansemond and Isle of Wight Counties;

Donald H. Selvage, Amherst, Va., LB $74,279, 306 ft. bridge over Staunton River and approaches, Rte. 761 from 0.13 mi. south of Staunton River to 0.13 mi. north of Staunton River, St. Proj. 1371-15-16; 1315-11, F Proj. S-754 (1), Pittsylvania and Campbell Counties. Bids Oct. 20. CD 10/4.

▲ **VIRGINIA**—Commonwealth of Virginia, Dpt. Hys., Central Office Bldg., 1221 E. Broad St., Richmond,

Mallard Constr. Co., Manassas, Va., LB $72,520 soil aggregate base 3.76 mi. Rte. 613, 622, from Int. Rt. 619 (west of Front Royal) to Int. Rt. 615, State Proj. 1393-04, Fed. Proj. S-783 (1), Warren Co.;

Atlantic Bituithic Co., 1400 Roseneath Rd., Richmond 21, Va., LB $297,999. b.conc. 4.8 mi. two and four lanes, Rt. 60, from 1.16 mi. west of WCL Richmond to 5.96 mi. west of WCL Richmond, State Proj. 2120-07, Fed. Proj. F-517 (4), Chesterfield Co.;

Clyde R. Royals, 350 W. Pembroke Ave., Hampton, Va., LB $64,736, soil aggregate base, bit. 0.84 mi. Rt. T-631 from Int. Rt. 13 (Eastville) to 0.04 mi. west of WCL Eastville, State Proj. 1365-02 Fed. Proj. S-50 (2), Northampton Co.;

W. H. Scott, Inc., P. O. Drawer, 418, Franklin, Va., LB $210,783, b.conc. paving, curb, gutter and sidewalk 1.14 mi. Rte. 58 from 0.03 mi. east of ECL Franklin 0.39 mi. east of ECL Franklin on 0.24 mi. east of WCL Franklin 0.53 mi. west of WCL Franklin, State Proj. 1746-02; 1787-01-06, Fed. Proj. F-231 (11), F-20 (3), Isle of Wight Co.;

Adams Constr. Co., P. O. Box 60, Roanoke, Va., LB $443,573, b.conc. paving, 2 bridges 7.25 mi. Rte. 301 from 1.02 mi. S. Sussex Co. line to 6.27 mi. north Greenville-Sussex Co. line, State Proj. 1840-08-09; 1891-02-03, Fed. Proj. I-370 (14), Sussex Co.;

W. E. Graham & Sons, P. O. Box 268, Cleveland, N. C., LB $84,866, grading, drainage 2.91 mi. Rte. 220 from N. C. State line to 2.91 mi. north of N. C. state line, State Proj. 1844-16, Contr. 1, Fed. Proj. F-28 (2), Henry Co. Bids Oct. 20. CD 10/4.

A. J. Ellis Constr. Co., 1826 Bladensburg Rd. N. E., Wash., D. C. LB $250,157, water supply main from 30 St. North to Lee Hy., ARLINGTON, VA. Arlington Co., Purch. Agt., Court House, Arlington, Tex. Bids Oct. 16. CD 9/15.

Taylor Constr. Co., 2339 W. Beaver St., Jacksonville Fla., CA $146,709, air terminal addns. Imeson Airport, JACKSONVILLE, FLA. City, City Hall, Jacksonville, Fla. Bids Sept. 30, awarded Oct. 7. CD 9/2.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

J. B. Michael & Co., 1021 Heywood St., Memphis, Tenn. LB $2,989,038. Contr. No. 7, 12.3 mi. two 24 ft. lanes rein.-con. pavement, Kentucky Turnpike Proj. No. 1, Hardin and Bullitt Counties. Bids Oct. 22. CD 10/5.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

R. B. Tyler Co., 1446 Levering St., Louisville, Ky. and **Breslin Constr. Co.**, 1433 S. Preston St., Louisville, Ky. CA $2,968,083. Contr. No. 9, 12.5 mi. two 24 ft. lanes rein.-con. pavement, Bullitt and Jefferson Counties. CD 10/25, under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort, rejected bids Oct. 15, Contr. 13, high type surf. Kentucky Turnpike Proj. No. 1, SP 56-688, Jefferson Co. LB $2,389,400. Will re-advertise. CD 10/19, under LB.

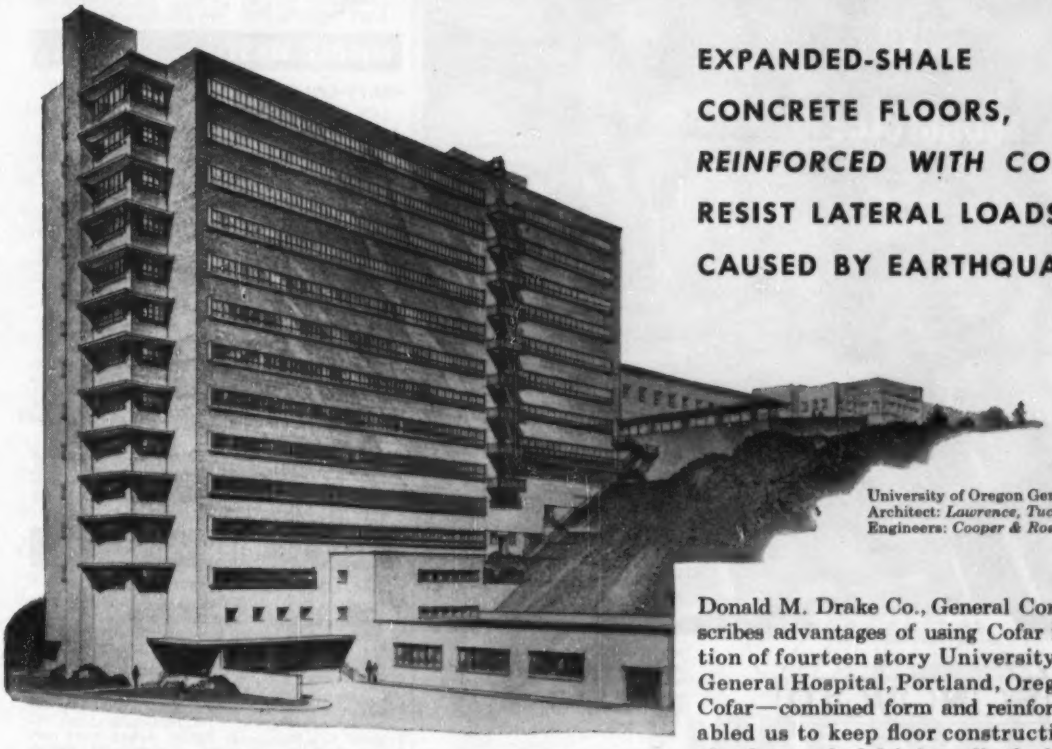
BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fegles Constr. Co., Inc.**, 711 Wesley Temple Bldg., Minneapolis, Minn. CA $2,319,000. 2,500,000 bu.

(Continued on page 66)

COFAR keeps pace with fast bolted frame construction in new Oregon Hospital

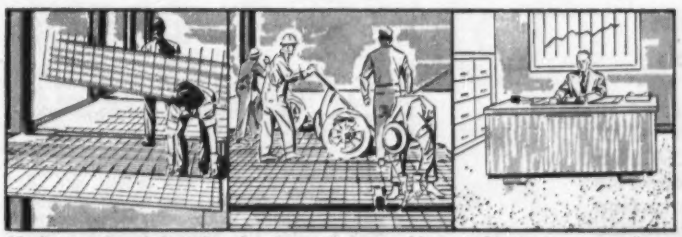


EXPANDED-SHALE CONCRETE FLOORS, *REINFORCED WITH COFAR,* RESIST LATERAL LOADS CAUSED BY EARTHQUAKES

University of Oregon General Hospital
Architect: *Lawrence, Tucker & Wallman*
Engineers: *Cooper & Rose*

Donald M. Drake Co., General Contractor, describes advantages of using Cofar in construction of fourteen story University of Oregon General Hospital, Portland, Oregon: "Using Cofar—combined form and reinforcement, enabled us to keep floor construction moving ahead 'on schedule' *immediately behind* rapid bolting of framework! By reducing over-all erection time, speeding-up the placement of concrete and insuring faster occupancy of the completed structure, Cofar provides economies in the floor system which benefit the owner, the architect and the contractor!"

Cofar deep corrugated steel units (with transverse temperature wires welded across the corrugations) serve as both form and reinforcement for concrete slabs, completely eliminating the expensive and time consuming construction of wood forms and provide all the positive steel needed in the structural concrete slab. For information, estimates or costs on *your* building project, contact home or district office, attention Dept. ER-E.



Placing steel and form in one operation—Cofar steel units (with transverse temperature wires welded across corrugations) arrive at job site cut to length to fit building frame. When welded in place, they give frame added lateral strength.

An immediate working platform—High-strength steel permits Cofar to absorb construction abuse. Corrugated sheets serve as tight form for wet concrete. After concrete sets, Cofar provides complete positive reinforcement at bottom of slab.

Safe, strong concrete floors—Fast Cofar construction speeds occupancy, is suited to steel or concrete frame construction. Cofar monolithic floors provide complete plate action for concentrated loads and horizontal forces. Cofar is fire safe.

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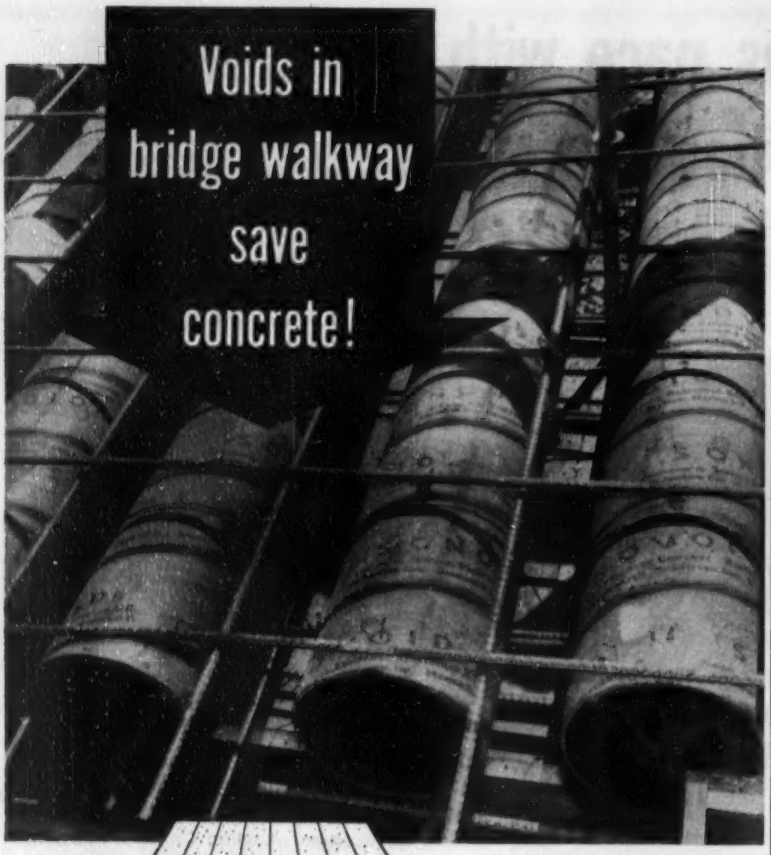

11th St. Bridge, Charlotte, N. C. • Rea Construction Co., Charlotte, Contractors • Frank T. Miller, Greensboro, Consulting Engineer • D. D. Biddix, Job Supt. • Max Gordon, Res. Engr.

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FIBRE TUBES

for voids in concrete construction

Walkways on both sides of this new street bridge in Charlotte, N. C., contain voids created by 9" O.D. SONOVOID Fibre Tubes. These low-cost SONOVOIDS were used to reduce the amount of concrete required for the job as well as to lighten the weight of the structure without impairing strength. SONOVOIDS displace the low-working concrete below the neutral axis, thereby eliminating dead weight.

Easy to handle, low-cost SONOVOID Fibre Tubes save concrete and reinforcing steel. Specifically developed for use in concrete bridge deck, wall, floor and roof slabs . . . prestressed and poststressed precast units or units cast in place.

Supplied in specified lengths or sawed to your requirements on the job. Sizes 2" to 36.9" O.D. up to 50' long.

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(Continued from page 64)

GRAIN ELEVATOR, etc., BATON ROUGE, LA. Greater Baton Rouge Port Comn., Port Allen, La. Bids Oct. 20. CD 10/5.

Franks Lumber Yard, Hammond, La. LB **$843,235.** 1 story, brick, concrete 46,000 sq. ft. RECEIVING BLDG., at Southeast Louisiana Hospital, Proj. U.S.P.H.S. La. 106, MANDEVILLE, LA. State Div. Admin., State Capitol, Baton Rouge, La. Bids Oct. 19. CD 10/5.

▲ † **Southern Constr. Co.,** Administration Bldg., Daniel Field, Augusta, Ga. LB **$2,629,964,** est. $2,980,000. seven E. M. BARRACKS, ENG-40-058-55-1, FORT CAMPBELL, KY. U. S. Eng., 303 Federal Office Bldg., Nashville, Tenn. Bids Oct. 21. CD 10/5.

MIDDLE WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15, **Horvitz Co.,** Midland Building, Cleveland 15, O. CA **$1,466,000,** est. $2,156,200, piers for Inner Belt Freeway Bridge, Cleveland, Cuyahoga Co. Bids Oct. 14, awarded Oct. 21. CD 10/21, under LB.

ILLINOIS—State Div. Hys., Springfield, rejected bids Oct. 8, 1 hy. bridge and removing, replacing handrail on existing bridge both U. S. 6, Henry Co. LB **$96,239.** CD 10/13, under LB.

MICHIGAN—State Hy. Dpt., Escanaba, **Bacco Constr. Co.,** Iron Mountain, Mich. CA **$259,082.** stabilized aggregate surf. 6.957 mi. M-69 east and west of Flech, Dickinson Co. Bids Oct. 12. CD 9/30.

BUILDINGS

LOW BIDS AND CONTRACTS

J. J. Stoller, 2442 Ferguson Rd., Cincinnati, O. Owner Builds. **$580,000.** forty 1½ story, 27x38 ft., brick HOMES, Alvera Dr., CINCINNATI, O. Leslie Moss, 1210 Drott Ave., Cincinnati, O., archt. Joseph Allen, 4638 Glenway Ave., Cincinnati, O., engr. Awarded Oct. 22.

Glaser & Glaser, Muncie, Ind., CA, **$952,618** general contract Southside Junior High SCHOOL, ANDERSON, IND. Anderson City Schools, 520 W. 11 St., Anderson, Ind. Bids Oct. 14, awarded Oct. 20. CD 10/22, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Texas**—BA 11/15—Soil Conservation Service, First Natl. Bank Bldg., Temple (37-55) floodwater retard structures with earthfill embankments, etc. on Cleark Fork Trinity River, approx. 6 mi. N.W. of Weatherford, Parker Co. Harold R. Baker, P.O. Box 417, Temple, engr.

Tex., Dallas—AIRPORT IMPRVS.—BA 11/15—City, City Hall, Main and Harwood Sts., (a) widening, extending present runway and lighting, $263,185 (b) paving N/S Runway and lighting, $246,079 (c) taxiway, $129,600 (d) aprons, $190,000 (e) grading, drainage, $145,500, for Redbird Airport.

† **Tex., Bryan**—AIRFIELD LIGHTING—BA 11/18—U. S. Eng., 100 W. Vickery St., Fort Worth, airfield lighting, Bryan Air Force Base, ENG-41-443-55-28. Extended date. CD 10/20.

† **Ark., Jacksonville**—BA 11/23—U. S. Eng., P.O. Box 867, Little Rock, airfield lighting, vault, installation of cables, manholes, beacon, controls, Little Rock Air Force Base, ENG-03-050-55-48, $100,000-$500,000. CD 12/17/52.

† **N. M., Shiprock**—BA 11/23—Bureau Indian Affairs, Dpt. Interior, Box 931, Albuquerque, addns. to water treatment plant, modifications of sewage plant, roads, etc., BU 603-142-J.

Okla., Blackwell—BA 11/23—City, water purification plant, pumping equip. $100,000. Plans deposit $15. Black & Veatch, 4760 Broadway, Kansas City, Mo., engrs. CD 12/2.

Tex., Dallas—BA 11/25—City, City Hall, Main and Harwood Sts., Section of East White Rock Trunk Sewer, mostly 48 in. pipe. $65,000. CD 6/4/53.

Tex., Grand Prairie—Bids Asked—Hub Hill & Assocs., Mercantile Security Bldg., and Pelt Bros. General Contractors & Assocs., 2727 W. Illinois St., Dallas, Section 2, c.i. water lines. $37,000. CD 9/28.

Tex., Grand Prairie—Bids Asked—Hub Hill & Assocs., Mercantile Security Bldg. and Pelt Bros., General Contractors & Assocs., 2727 W. Illinois St., Dallas, Section 2, sanitary sewers, $67,500; storm sewers, $60,000. CD 9/28.

Tex., Grand Prairie—Bids Asked—Hub Hill & Assocs., Mercantile Security Bldg., and Pelt Bros. General Contractors & Assocs., 2727 W. Illinois St., Dallas, Section 2, constr. and paving new streets, $67,500. CD 9/28.

BIDS ASKED—BUILDINGS

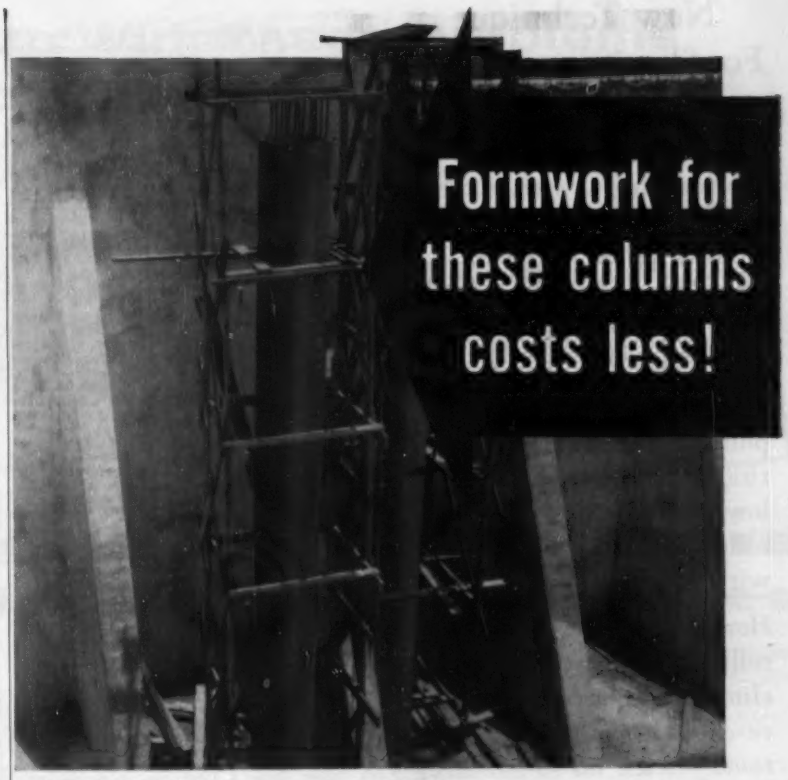
Tex., West—CHURCH—BA 11/30—L. J. Reicher, Bishop of Austin Diocese, Austin, Church of the Assumption with office wing. $400,000. Plans deposit $25. Extended date. Boese & Harkrider, 1004 T & P Bldg., Fort Worth, archts. CD 10/31.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Dobson Bros. Constr. Co., 512 First National Bank Bldg., Lincoln, Neb. LB **$82,855.** paving, drainage, LINCOLN, NEB. City, City Hall, Lincoln, Neb. Bids Oct. 20. CD 10/18.

KANSAS—State Hy. Comn., Junction City,
M. W. Watson, National Bank of Topeka Bldg., Topeka, Kan. CA **$100,418.** grading 6.026 mi. Proj. 13-31 S 131 (4), Geary Co. Bids Oct. 15. CD 10/1.
KANSAS—State Hy. Comn., Norton,
Caylor Brothers Constr. Co., Ottawa, Kan. CA **$222,958.** grading 15.483 mi. Proj. 24-90 F 078-1 (5), Sheridan Co. Bids Oct. 14. CD 10/1.
▲† **Cook Constr. Co.**, Box 1151, Jackson, Miss. LB **$2,324,850.** Lovewell Dam, Bostwick Division, Missouri River Basin Proj., Spec. DC 4253, KANSAS. Bureau Reclamation, Dpt. Interior, Superior, Neb. Bids Oct. 21. CD 9/21.
OKLAHOMA—State Hy. Comn., Capitol Office Bldg., Oklahoma City,
Jack Durett, Keota, Okla. CA **$71,015**, est. $81,141. concrete, steel bridge on Hy. 57 near Idabel, McCurtain Co.;
Moore Bridge Co., Ada, Okla. CA **$74,847**, est. $79,160. wid'n., exten. 4 concrete, steel bridges on US 66 east of Chandler, Lincoln Co.; CA **$211,871**, est. $215,289., 3 concrete, steel bridges on Hy. 100 near Ten Killer Reservoir, Adair and Cherokee Counties;
Southern Constr. Co., 1405 W. Reno St., Oklahoma City, Okla. CA **$83,906**, est. $88,606, concrete, steel bridge over Goff Creek on Hy. 95, Texas Co. Grand total $441,639. Bids Oct. 19, awarded Oct. 20. CD 10/8.
▲ **OKLAHOMA**—State Hy. Comn., Capitol, Office Bldg., Oklahoma City, Zone 5,
Anchor Constr. Co., P.O. Box 1467, Muskogee, Okla. CA **$518,025**, est. $487,726. stabilized aggregate base, b. conc. 7.091 mi. US 69 north of McAlester, Pittsburg Co.;
Amis Constr. Co., 1647 Exchange Ave., Oklahoma City 8, Okla. CA **$201,861**, est. $221,730. grade, culverts 4.229 mi. Hy. 20 between Jay and Arkansas State Line, Delaware Co.; CA **$103,664**, est. $107,387. grade, culverts 6.789 mi. Hy. 20 between Jay and Arkansas State Line, Delaware Co.; CA **$245,198**, est. $262,051. grade, drain 6.067 mi. Hy. 100 at point south of Stilwell, Adair and Cherokee Counties; CA **$153,488**, est. $164,954. grade, drain 5.164 mi. Hy. 100 south and near Ten Killer Reservoir, Adair and Cherokee Counties;
Boecking Constr. Co., 2810 N. McArthur St., Oklahoma City, Okla. CA **$177,494**, est. $165,564. c. conc. 0.973 mi. at South Canadian River on US 81, Canadian Co.;
Jack Briscoe, Stillwater, Okla. CA **$546,066**, est. $599,771. c. conc. 3.908 mi. US 70 west of Ardmore, Carter Co.;
Broce Constr. Co., Woodward, Okla. CA **$120,295**, est. $115,803. b. conc., single bit. surf. 5.837 mi. US 283, Harper Co.;
Burbank Rock Co., Ponca City, Okla. CA **$116,655**, est. $150,868. grade, drain 5.176 mi., 1 bridge on Hy. 9-A east of Maud, Pottawatomie Co.;
H. G. Cozad, Sulphur, Okla. CA **$104,760**, est. $117,021. grade, drainage 3.908 mi. US 70 west of Ardmore, Carter Co.;
Mark Holloway Constr. Co., 5144 N. Brookline St., Oklahoma City, 18, Okla. CA **$85,459**, est. $78,037. b. conc. 0.519 mi. Hy. 74 at Oklahoma City, Oklahoma Co.;
Honnegar Bros., Kingfisher, Okla. CA **$86,824**, est. $98,061. grade, drainage 5.587 mi. US 77 J south of Edmond, Oklahoma Co.; CA **$150,670.**, est. $210,046. grade, drain 4.937 mi., 3 bridges on US 70 at Taylor, Cotton Co.;
Hunter Constr. Co., Ada, Okla. CA **$335,061**, est. $335,562. b. conc. wid'n., surf. 3.442 mi. US 66 east of Chandler, Lincoln Co.;
Layman & Sons, 3001 Riverside Dr., Tulsa, Okla. CA **$114,484**, est. $152,833. grade, rock asph. 3.524 mi. US 271 at Summerfield, LeFlore Co.;
W. E. Logan & Sons Co., Barnes Bldg., Muskogee, Okla. CA **$170,077**, est. $207,516. grade, drainage 4.309 mi. US 66 east of Verdigris River, Rogers Co.;
Lyles & Buckner, Surety Bldg., Muskogee, Okla. CA **$392,796**, est. $477,791. c. conc. 5.162 mi. US 62 west of Henryetta, Okmulgee Co.;
A. K. McBride, Fort Smith, Ark. CA **$82,527**, est. $86,419. c. conc. 0.481 mi. US 271 east of Clayton, Pushmataha Co.;
S. & S. Constr. Co., Ponca City, Okla. CA **$125,296**, est. $142,486 grade, drainage 6.597 mi. Hy. 57 near Idabel, McCurtain Co.;
Standard Paving Co., 2119 E. 11 St., Tulsa, Okla. CA **$662,197**, est. $679,329. stabilized aggregate base, b. conc. 2.32 mi. US 81 in Duncan, Stephens Co.;
W. E. Steelman, 2810 E. Fourth St., Oklahoma City, Okla. CA **$536,151**, est. $536,275. b. conc. 6.357 mi. US 77 J south of Edmond, Oklahoma Co.;
T. & R. Constr. Co., Barnes Bldg., Muskogee, Okla. CA **$61,337**, est. $71,036. grade, drain, 4.468 mi. US 266 east of Checotah, McIntosh Co.;
H. D. Youngman, Baxter Springs, Kan. CA **$256,387.** est. $278,009, stabilized aggregate base with blended rock asph. surf. 7.927 mi. Hy. 299 near Yuba, Bryan Co.; CA **$62,196**, est. $67,553, stabilized aggregate base with blended rock asph. surf. 1.89 mi. Hy. 299 near Yuba, Bryan Co.; CA **$113,718**, est. $143,482, stabilized aggregate base, double bit. surf. 6.067 mi. Hy. 28, Mayes Co.; CA **$124,773**, est. $127,774, stabilized aggregate base with blended rock asph. surf. 3.864 mi. Hy. 299 near Yuba, Bryan Co.; CA **$126,583**, est. $166,600. stabilized aggregate base, double bit. surf. 6.811 mi. Hy. 28, Mayes Co. Grand total $5,783,042. Bids Oct. 19, awd. Oct. 20. CD 10/8.
▲† **Peter Kiewit Sons' Co.**, Box 3008 SE Station, Wichita 17, Kan., LB **$2,684,668.** addnl. airfield paving, Altus Air Force Base, Inv. No. ENG-34-066-95-16. ALTUS, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Oct. 21.
TEXAS—State Hy. Comn., Austin,
H. Ratliff, Rogers, Tex., LB **$175,273**, Frio River and Slough Bridge and approaches Hy. ST 97, 1.893 mi. Proj. S 1608 (1), La Salle Co. Bids Oct. 20. CD 9/29.



Englewood switch yards "crest bridge", Houston, Tex. Schwope Brothers, Houston, Tex., Contractors

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Round concrete columns being erected as part of this "crest bridge" over railroad tracks in Houston, Texas, are formed with low cost SONOTUBES.

The fibre forms used on this job are 29′ long and 30″ inside diameter.

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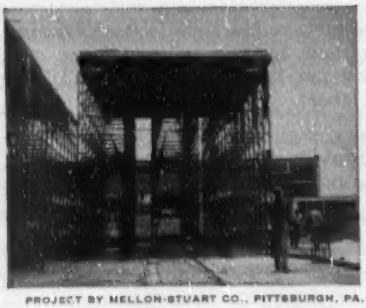
After the first slab was poured, (at 21 ft. height) the entire shore-unit was lowered on the casters, and rolled on to the next bay—with the forms intact.

Here were his savings: one rolling rig shored 4 slabs—eliminated tearing-down and re-erecting shoring *three times*—with no re-handling or re-setting of forms. He also saved on erection time, his scaffold-shoring went *'Up Faster'* with Ezebilt's Gravity-Lock mechanism. *You can save on any shoring job* with Universal Scaffold-for-Shoring—then use the same panels for mason work.

Ezebilt SCAFFOLDING



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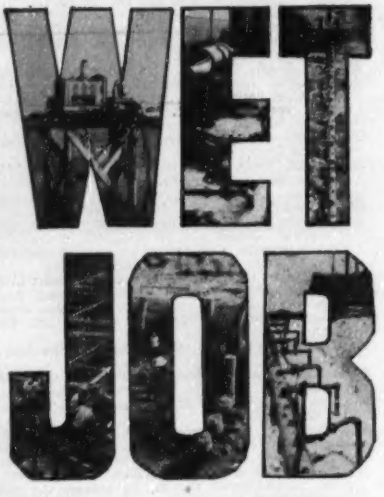
▲ TEXAS—State Hy. Comn., Austin,
Austin Bridge Co. & Austin Road Co., P. O. Box 1590, Dallas, Tex. LB $987,887. grade, structures storm sewers, c. conc. 0.947 mi. Hy. US 75, Proj. UI 832 (15), Dallas Co.;
Lee Moor Contg. Co., 205 Bassett Tower, El Paso, Tex. LB $84,594. flexible base, b. conc. 6.709 mi. Hy. SH 82, Ward Co.; LB $82,167, grade, structures, base, surf. 11.842 mi. Hy. FM 1450, Proj. R 1639-2-2, Pecos Co.;
Collins Constr. Co. of Texas, P. O. Box 1192, Austin, Tex. LB $133,968. flexible base, b. conc. 2.125 mi. Hy. US 183 and FM 969, Proj. C 151-7-2, Travis Co.;
Stephen Luce, 2211 15 St., Vernon Tex. LB $85,712. grade, structures, base 9.112 mi. Hy. FM 268 and 680, Proj. R 704-2-6, etc., Childress and Hardeman Counties; LB $79,504, grade, structures, base, surf. 5.186 mi. Hy. FM 2075, Proj. S 1978 (1), etc., Young Co.;
J. R. Fanning, P. O. Box 1278, Lubbock, Tex. LB $202,833, grade, structures, base surf. 17.458 mi. Hy. FM 1085 and 419, Fisher and Jones Counties;
Ernest Loyd, P. O. Box 1120, Fort Worth, Tex. LB $63,482. grade, structures, base, surf. 2.582 mi. Hy. FM 2169, Proj. R 2007-1-1, Kimble Co.; LB $224,085, flexible base, two course surf. tr. 9.953 mi. Hy. SH 16, Proj. S 1517 (3), Comanche Co.;
Worth Constr. Co., P. O. Box 531, Fort Worth, Tex LB $466,721. flexible base, c. conc., hot mix asph. 2.698 mi. Hy. SH 347, Proj. S 1281 (2), Jefferson Co.;
Holland Page, P. O. Box 1181, Austin, Tex. LB $134,689. grade, structures, base, surf. 12.855 mi. Hy. FM 393 and 1436, Zavala Co.; LB $119,025, grade structures, base, surf. 14.237 mi. Hy. FM 648 and 783, Proj. R 1056-1 and 2, etc., Mason and Gillespie Counties;
C. C. Booth, P. O. Box 508, Stephenville, Tex. LB $66,503. grade, structures, base, surf. 7.486 mi. Hy. FM 199 and 2174, Somervell and Hood Counties;
Jim F. Buckner & Sons, P. O. Box 76, Cleburne, Tex. LB $71,451. grade, structures, base, surf. 5.298 mi. Hy. FM 220, Proj. S 1981 (1), Tarrant Co.;
Menefee Bros., P. O. Box 431, Center, Tex. LB $60,657. grade, structures, base, surf. 4.629 mi. Hy. FM 2012, Proj. S 1948 (1), Rusk Co.;
Austin Bridge Co., P. O. Box 1598, Dallas, Tex. LB $210,172. grade, grade separation, flexible base, c. conc., storm sewer, two course surf. tr. 0.307 mi. Hy. US 87, Proj. FG 60 (6), Randall Co.;
Schmid & Foust, Contractors, 3710 LaBranch St., Houston, Tex. LB $231,229. grade, structures, storm sewer, stabilized base, c. conc. Holmes Road Overpass 0.068 mi. Hy. SH 35 Proj. U 679 (5), Harris Co.;
Bell, Braden, Barker & Gilvin, Inc., P. O. Box 2268, Amarillo, Tex. LB $77,554. grade, structures, base, surf. 5.913 mi. Hy. FM 296, Proj. R 1141-1-3, Dallam Co. Bids Oct. 20. CD 10/4.

TEXAS—State Hy. Comn., Austin,
Elmer C. Gardner, Inc., P. O. Box 19071, Houston, Tex., LB, $232,718, KCS RR overpass 0.123 mi. Hy. U. S. 90, Proj. IN-149 (16), Orange Co., CD 10/4;
Jack Freeland & Co., 6637 W. Commerce St., San Antonio, Tex., LB, $71,234, Butcher Knife Draw, Adobe Walls Creek and Box Canion Creek Bridges and approaches 0.434 mi. Hy. ST 118, Proj. S-1155 (4), Brewster Co.;
Ernest Loyd, P. O. Box 1120, Fort Worth, Tex., LB, $426,492, P & SF R.R. underpass (4th) St. 0.844 mi. and approaches on Hy. U. S. 82 Proj. FG-503 (8), Lubbock Co. Bids Oct. 19. CD 9/29.

▲ TEXAS—State Hy. Comn., Austin,
Worth Constr. Co., P. O. Box 531, Fort Worth, Tex. LB $636,174. road bed tr., c. conc. 3.021 mi. Hy. US 84, Proj. U 605 (17), McLennan Co.;
Ernest Loyd, P. O. Box 1120, Fort Worth, Tex. LB $89,465. flexible base, 2 course surf. tr. 1.824 mi. Hy. US 281, Proj. F 437 (5), Jack Co.; LB $106,306. grade, structures, base, surf. 11.783 mi. Hy. FM 1310 and 789, Proj. R 800-1-4, etc., Floyd and Hales Counties; LB $64,312. grade structures, base, surf. 6.7 mi. Hy. FM 1962, Proj. R 1846-1-4, Sutton Co.; LB $575,461, flexible base, c. conc. 5.363 mi. Hy. US 66, Proj. FI 547 (17), Gray and Donley Counties;
Henry Stafford, P. O. Box 1047, Lubbock, Tex. LB $73,363. flexible base, b. conc. 2.145 mi. Hy. FM 761, Proj. C 1120-1-2 and 3, Reaves Co.;
T. E. Sanderford, P. O. Box 58, Betton, Tex. LB $63,357, grade, structures, base, surf. 5.849 mi. Hy. FM 439 and Spur, Proj. R 836-3-3, Bell Co.;
W. R. Aldrich Co., P. O. Box 1751, Baton Rouge, La. LB $305,044. grade, storm sewers, c. conc. 0.7 mi. Hy. US 90, Proj. UI 56 (10), Jefferson Co.;
W. L. Barnes, 3102 Perry Lane, Austin, Tex. LB $100,871. grade, structures, base, surf. 8.654 mi. Hy. FM 2084, Proj. S 1130 (1), Tom Green Co.;
Border Constr. Co. and Warrell & Watkins, Zapata, Tex. LB $395,490. reconstr., flexible base, two-course tr. 12.371 mi. Hy. US 83, Proj. F 337 (5), Starr Co.;
Bryan & Hoffman, P.O. Box 390, Plainview, Tex. LB $119,276. fdn. course, b. conc. 12.395 mi. Hy. SH 86 and FM 94, Proj. S 602 (1), Hall and Motley Counties;
R. B. Butler, Inc., P.O. Box 471, Bryan, Tex. LB $98,444. grade, structures base, surf. 6.942 mi. Hy. FM 250, Proj. C 946-2 and 1-3 and 4, Morris and Cass Counties;
Cooper & Woodruff, 222 Mays Bldg., Amarillo, Tex. LB $160,033. grade, structures, base, surf. 4.794 mi. Hy FM 266, Proj. R 758-1-5, Knox Co.;
Inan Dement, Inc., P.O. Box 1787, Amarillo, Tex. LB $64,906. grade, structures, base, surf. 1.787 mi. Hy. FM 2172, Proj. R 2078-1-1, Lipscomb Co. Bids Oct. 19. CD 10/4.

(Continued on page 70)

IF IT'S A



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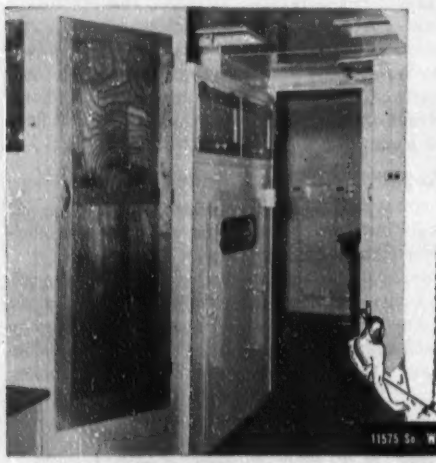

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(Continued from page 68)

† **Duncan & Arnett,** Corsicana, Tex., LB, **$70,335,** est. $90,000 floodwater retarding structures on East Laterals of Trinity River Watershed, Henderson Co., Inv. 30-55, TEXAS Soil Conservation Service Dpt. Agriculture, First Natl. Bank Bldg., Temple, Tex. Bids Oct. 18. CD 9/30.

† **Hooper Constr. Co.,** Box 2611, Odessa, Tex., LB, $362,575, hangar-maintenance with shops, Webb Air Force Base, ENG-29-005-55-26, BIG SPRING, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Oct. 12. CD 9/22.

Sims Bayou Water & Sewer Works, c/o V. L. Evans, State Natl. Bank Bldg., Houston, Tex., Owner Builds, $65,000 sanitary sewers; $60,000 storm sewers in Blue Ridge Addn., HOUSTON, TEX. CD 9/28.

Sims Bayou Water & Sewer Works, c/o V. L. Evans, State Natl. Bank Bldg., Houston, Tex. Owner Builds, $65,000. new streets and asph. paving of same in Blue Ridge Addn. HOUSTON, TEX.

Russ Mitchell, Inc., Box 8068, Houston, Tex., LB, $149,984, est. $189,650, Chocolate Bayou asph. type road paving, HOUSTON, TEX. City, City Hall, 900 Brazos St., Houston, Tex. Bids Oct. 15. CD 10/13.

Sims Bayou Water & Sewer Works, c/o V. L. Evans, State National Bank Bldg., Houston, Tex., Owner Builds. $35,000. c.i. water lines in Blue Ridge addn., HOUSTON, TEX.

▲ † **Robert E. McKee General Contractor, Inc.,** Box 562, El Paso, Tex., LB $2,797,700. (A, B, C, D) combined engine trainer cells and supporting facilities, Shepherd Air Force Base, Inv. No. Eng 34-066-55-13, WICHITA FALLS, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Oct. 21. CD 10/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Harmon Constr. Co.,** 100 S. Indiana St., Oklahoma City, Okla. CA $1,477,777. HOSPITAL addn., HANNIBAL, MO. St. Elizabeths Hospital, Hannibal, Mo. CD 9/29, under LB.

Dondlinger & Sons, 1206 E. Lincoln St., Wichita, Kan. CA $928,106. general contract FIELD HOUSE at University of Wichita, WICHITA, KAN. Bd. Regents, University of Wichita, 1845 Fairmount St., Wichita, Kan. Bids Oct. 7. CD 9/21.

Garden Development Co., 4606 Greenville St., Dallas, Tex., Purchase and Hire, $312,500. 31 DWELLINGS, DALLAS, TEX. CD 10/1.

Pittsburgh Screw & Bolt Corp., Colona Mfg. Div., 2719 Preble Ave., Pittsburgh, Pa., Own Forces, $425,000. MFG. PLANT UNIT, LONGVIEW, TEX. CD 7/21.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Utah, Springville—BA 11/15—City, 10,382 ft. 4- to 18-in. sewerage sys., lift station. Plans deposit $25. Neff Engineering & Constr. Co., 2500 Evergreen Ave., Salt Lake City, engr.

† **Wash., Keyport**—SPRINKLER SYSTEM—BA 11/16—P. Wks. Officer, Thirteenth Naval District, 1611 W. Wheeler St. Seattle, altering, extending sprinkler sys. in Bldg. 83, Naval Torpedo Station, Specs. 44363.

BIDS ASKED—BUILDINGS

▲ **Calif., San Jose**—MOTEL, etc.—Bids Asked—Owner, c/o Bruce E. Heiser, archt., 251 Post St., San Francisco, motel, swimming pools, etc., First St. $1,300,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Aiman Constr. Co.,** Idaho Falls, Idaho, CA $133,493, est. $100,000 rein.-con. swimming pool with masonry bathhouse and filter bldg., IDAHO FALLS, IDAHO. City, City Hall, Idaho Falls, Idaho. Bids Aug. 25. CD 8/18.

WASHINGTON—State Hy. Comn., Olympia,
Peter Kiewit Sons' Co., 1300 Aloha St., Seattle, Wash., LB $665,982, 0.202 mi. Secondary State Hy. 1-K approaches to First Ave. S. bridge, Sch. C, F.A.P. U-001-3 (7), King Co. Bids Oct. 19. CD 10/6.

WASHINGTON—State Hy. Comn., Olympia,
H. Kathman, 12054 23 Ave. N.E., Seattle, Wash., LB $422,007, 4.539 mi. Secondary State Hy. 2-A, F.A.P. F 025, (2), King Co.;
Woodworth & Co., 1200 E. D. St., Tacoma, Wash., LB $116,674, 2.81 mi. Primary State Hy. 5, Clark Creek to Tacoma, Pierce Co.;
C & E Constr. Co., Inc., Box 1545, Yakima, Wash., LB $99,992. 1.473 mi. Primary State Hy. 3, F.A.P. F-018-3 (2), Yakima Co. Bids Oct. 19. CD 10/6.

† **OREGON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland,
White Bros., Third and Sumach Sts., Walla Walla, Wash. CA $504,150. grade 6.708 mi., 2 concrete bridges on West Fork of Smith River Rd. and Esmond Creek Rd., Douglas Co. Bids Oct. 15. CD 10/6.

† **Summers & Stacey,** Klamath Falls, Ore., LB, $632,697, earthwork, structures, etc. Corning Canal, Red Bluff, Tehama Co., Spec. DC 4256, CALIFORNIA Bureau Reclamation, Dpt. Interior, Red Bluff, Calif. Bids Oct. 20. CD 9/22.

CALIFORNIA—State Div. Hys., Sacramento,
Granite Constr. Co., P. O. Box 900, Watsonville, Calif., CA, $583,303. grading, surf. approaches and 4 bridges between Olivehurst and Marysville, Yuba Co. Bids Sept. 29, awarded Oct. 20. CD 10/7, under LB.

▲ **CALIFORNIA**—State Div. Hys., Sacramento,
Gordon H. Ball & San Ramon Valley Land Co., Camille Ave. Danville, Calif., CA, $1,791,255, 8 mi. and 5 bridges between Kern Co. line and Earlimart, Tulare

(Continued on page 72)

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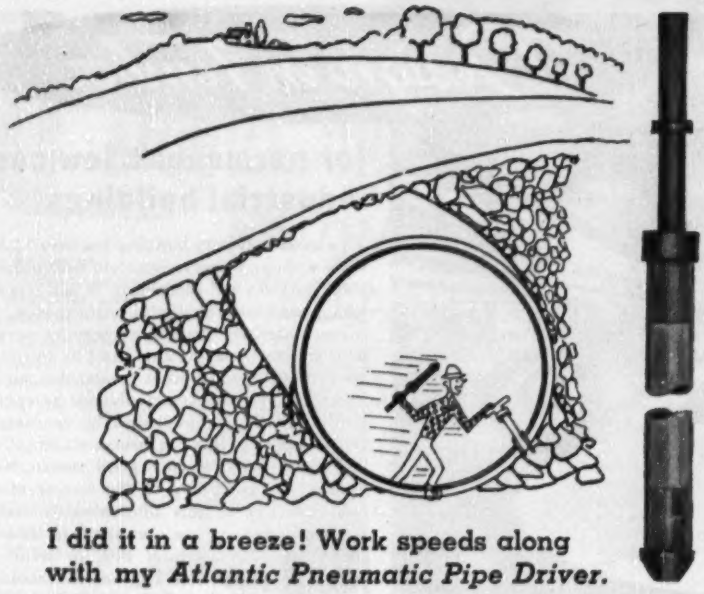

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(Continued from page 70)

Co. Bids Oct. 6, awarded Oct. 20. CD 10/20, under LB.

▲ **CALIFORNIA**—State Div. Hys., Sacramento, **Frederickson & Watson Constr. Co. and M & K Corp.**, 873 81 Ave., Oakland, Calif., LB, $5,110,678 imprvs. 4.8 mi., from Santa Clara St. to Jefferson Ave., etc., Contra Costa Co. Bids Oct. 20. CD 9/30.

BUILDINGS

LOW BIDS AND CONTRACTS

† **U. S. Eng.**, 4735 E. Marginal Way, Seattle 4, Wash., cancelled bids to have been opened Sept. 23, 160x240 ft. masonry sand-blasting and paint spray shop, Mount Rainier Ordnance Depot, on existing conc. slab, Inv. 55-25, TACOMA, WASH. CD 8/18.

McCormick Constr. Co., S. E. Third and Godwin Sts., Pendleton, Ore. CA $533,217. 3 story, rein.-con. COURT HOUSE, PENDLETON, ORE. Umatilla Co., Court House, Pendleton, Ore. Bids Oct. 19. CD 10/1.

Williams & Burrows and Carl N. Swenson, Inc., Box 395, Goleta, Calif., LB, $568,800. MUSIC BLDG., GOLETA, CALIF. University of California, Goleta, Calif. Bids Oct. 19. CD 10/11.

† **Edward R. Siple Co.**, 2545 San Fernando Rd., Los Angeles, Calif., LB, $827,249, E. M. BARRACKS, U. S. Disciplinary Barracks, ENG-04-353-55-39, LOMPOC, CALIF. U. S. Eng., 571 S. Figueroa St., Los Angeles, Calif. Bids Oct 20. CD 10/4.

▲ **Steed Bros.**, Box 35, Alhambra, Calif., LB, $1,174,700 Fulton Junior HIGH SCHOOL, LOS ANGELES, CALIF. Los Angeles City Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Oct. 19. CD 9/23.

Robert E. McKee, 4700 San Fernando Rd., Los Angeles, Calif., CA, $789,300 first phase of Unit 4, Calif. MEDICAL FACILITY, VACAVILLE, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids Oct. 14, awarded Oct. 18. CD 10/20, under LB.

CANADA

BIDS ASKED—BUILDINGS

Ont., Petawawa—EXPERIMENTAL STATION—BA 11/17—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., forest experimental station, Army Station, $300,000. Plans deposit $50. E. A. Gardner, c/o owner, archt.

▲ **Que., Montreal**—HOSPITAL—Bids Asked—Clinique B.C.G. de Montreal, 2427 Letorneux St., 4 story, bsmnt. hospital, Belanger St., Rosemount, $1,500,000. J. M. Morin, 84 Notre Dame St. W., archt. CD 4/28/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Oilund Constr. Co. Ltd., Grand Prairie, Alta., CA, $40,083, water mains, GRANDE PRAIRIE, ALTA. Municipality, Grande Prairie, Alta.

Grover & Faupel, Hanna, Alta., CA, $47,000. water main extens., HANNA, ALTA. Municipality, Hanna, Alta.

Norman H. Woods & Assocs., Chilliwack, B. C., CA, $118,504, chain link fence and seeding at R.C.A.F. Station, NAMOA, ALTA. Dpt. National Defence, Ottawa, Ont. CD 4/16/53.

Alberta Builders, Inc., Grand Falls, Mont., U. S. A., CA, $82,062, water sys. rehabilitation, STANDARD, ALTA. Municipality, Standard, Alta. Haddin & Brown Ltd., Calgary, Alta., engrs.

Cromar Constr. Ltd., 448 Colborne St., Brantford, Ont., CA, $105,878, artificial ice rink at Lion's Park, BRANTFORD, ONT. Municipality, Brantford, Ont. CD 7/9/53.

Martells Constr. Co. Ltd., North Sydney, N. S., CA, $64,831, breakwater, SHAG HARBOR, N. S. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.

H. J. McFarland Co. Ltd., Picton, Ont., CA, $68,174 sanitary sewers in Westwood Zone; CA $141,154, sanitary and storm sewers in Westwood Zone, OTTAWA, ONT. Municipality, City Hall, Ottawa, Ont. CD 8/24/49.

W. Patrick Constr. Co. Ltd., Eatonia, Sask., CA $96,000, water sys., EATONIA, SASK. Municipality, Eatonia, Sask. Underwood & Assocs. Ltd., Saskatoon, Sask., engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Edmonton Steel Fabricators Ltd.**, Cooking Lake Trail, Edmonton, Alta., Owner Builds, $2,500,000, STEEL MILL, EDMONTON, ALTA.

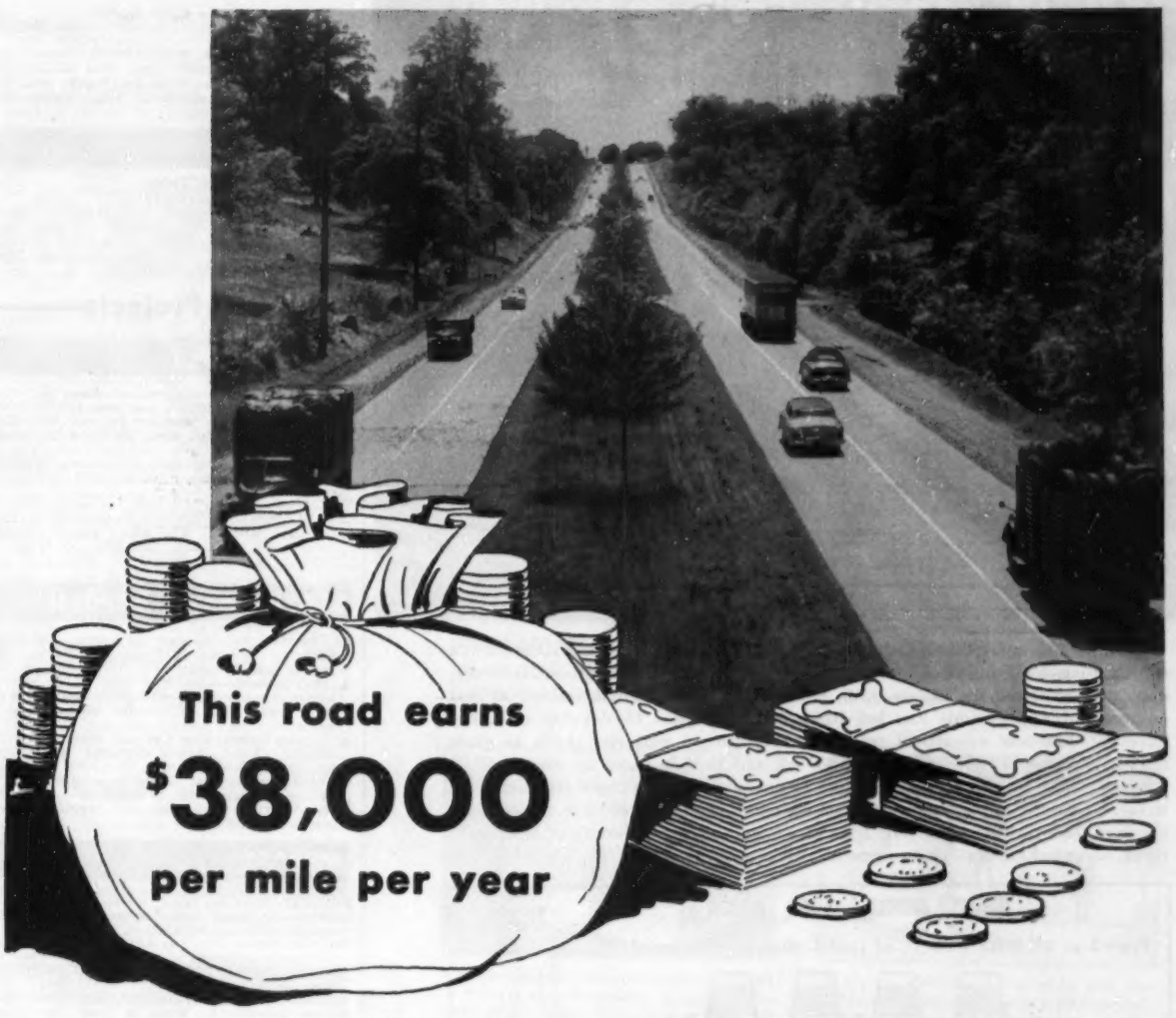
▲ **Sir Lindsay Parkinson (Canada) Ltd.**, 52 St. Clair Ave. E., Toronto, Ont., LB $2,081,558, HOME for the aged, at NEWMARKET, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Oct. 19. CD 10/4.

W. Rourke Ltd., 2 St. Sacrament St., Quebec City, Que., CA, $250,000, concrete, structural steel, brick BAKERY, GARAGE and WAREHOUSE, PETITE RIVIERE, QUE. National Bakery Ltd., 540 First Ave., Quebec City, Que. CD 7/23, under CA.

Ouemont Constr. Reg., 285 Bernard Ave., Montreal, Que., CA, $600,000, est. $400,000, 2 story, bsmnt., 65x452 ft., concrete, brick, stone SCHOOL on Blvd. Rosemount, Parish of St. Eugene, MONTREAL, QUE. Catholic School Comn., 117 W. Ste. Catherine St., Montreal, Que. G. Gagnier, 1449 Crescent St., Montreal, Que., archt. Leblanc & Montpetit, 515 De Montigny St., Montreal, engrs. CD 10/21.

▲ **Montclair Constr. Co. Ltd.**, 5515 Western Ave., Montreal, Que., CA, $1,665,000. steel, brick, stone, concrete SCHOOL, OUTREMONT, QUE. School Trustees,

(Continued on page 74)



A road earning money? Absolutely! Every road earns money in the form of gas taxes and license fees paid by drivers using it. The more vehicle miles of traffic a road handles the more money it earns.

The road pictured is U.S. 41 near Nashville, Tenn. It carries a daily average of 14,800 vehicles, many of them commercial. Here, in simple arithmetic, is how to compute the earnings of this concrete road:

Vehicles traveling this road per day	14,800
Times average vehicle tax per mile in Tenn.	$ .007
Equals earnings per day per mile	$103.60
Times number of days a year	365
Equal annual earnings per mile	$37,814
Minus the annual cost to build and maintain such a road during its lifetime	$10,000
Equals annual profit earned per mile	$27,814

Similar analyses elsewhere show that concrete roads earn the most "profit." That's because they attract the most traffic and have the longest life.

For example, concrete carries the load on 92% of the pavement of the 25 most heavily traveled rural road sections in America. And official studies reveal that concrete has at least twice the life expectancy of the next most commonly built pavement.

Concrete roads usually earn *more* than they cost to build and maintain. The "profit" pays for additional miles of new highways. In contrast, other commonly built pavements have such a relatively short life and require such frequent and expensive maintenance that they earn *less* than they cost to build and maintain. Thus they drain an increasing amount from available funds for maintenance, leaving a decreasing amount for building critically needed new mileage.

Highway users expect engineers and public officials to invest their money in roads paying the best dividends. That means paving all main roads with concrete, the self-supporting, profit-making pavement.

For more information about designing and constructing low-annual-cost, high-earning-capacity concrete highways, write today for free literature, which is distributed only in the United States and Canada.

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Without further treatment, the exposed fluted undersurface of Robertson's strong, long-span roof deck has a recognizable noise reduction effect. However, consistent demand for higher noise reduction in institutional, industrial and commercial applications has led Robertson engineers to develop a highly effective, low-cost acoustical treatment. Acoustical material (such as glass fiber) is placed in the cells of the Q-Deck and held in place by means of an adhesive. The ceiling may be repeatedly spray painted without impairing its value. The noise reduction coefficients shown in the table below were obtained through tests conducted by Dr. Paul H. Geiger at the University of Michigan, using accepted laboratory equipment and procedure.

	NOISE REDUCTION COEFFICIENT
Type 3 or UK Deck with 1" of sound absorbent material.....	.60
Type 12 or FK Deck with 2" of sound absorbent material.....	.72
Type 12 or FK Deck with 4" of sound absorbent material.....	.90

For areas where the more costly suspended ceiling is desired, any standard method of application can be used. For details concerning this or the new low-cost Robertson method of roof deck engineering data and structural details, use the coupon below.

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Please send the following free file material from Robertson's Technical Library: ☐ Roof Deck Catalog ☐ Acoustical Data Book

NAME

FIRM

ADDRESS

(Continued from page 72)

520 Ste. Catherine Rd., Outremont, Que. Bids Oct. 16. CD 9/15.

Poole Constr. Co. Ltd., 7 Hamilton St., Regina, Sask., CA, $336,613. concrete, steel, brick SCHOOL, TISDALE, SASK. Tisdale School Bd., Tisdale, Sask. F. H. Portnall, Bank of Commerce Bldg., Regina, Sask., archt.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† Pacific Alaska Contractors, 1515 Center St., Tacoma, Wash., CA, $321,707, Schedule 2, ammo storage facilities, ENG-95-507-55-1, to serve family housing, Whittier, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Sept. 9. CD 9/16, under LB.

Proposed Projects

WATER SUPPLY

Colo., Denver—Consolidated Mutual Water Co., Cooper Bldg., dam and reservoir, near here, $250,000; filter plant, 26 Ave. near Youngfield St., near here, $250,000. Lane Eng. Co., 8596 W. Colfax St., consult. engr.-archt.

Ga., Dublin—City, City Hall, WW imprvs. $500,000. Wiedeman & Singleton, P. O. Box 1878, Atlanta, Ga., consult. engrs.

Tenn., Sevierville—City, City Hall, WW imprvs. $700,000.

Que., St. Romuald D'Etchemin—Municipality, A. Gosselin, secy., voted for filter plant, reservoir, extending water mains and sewers. $550,000. M. Gilbert, 31 McMahon St., Quebec City, consult. engr.

SEWERS, WASTE DISPOSAL

Ga., Dublin—City, City Hall, sanitary sewerage imprvs. $500,000. Wiedeman & Singleton, P. O. Box 1878, Atlanta, consult. engrs.

▲ Ill., Charleston—City, City Hall, sewer lines and sewage treatment plant, $1,600,000. Warren & Van Praag, 253 S. Park St., Decatur, consult. engrs. CD 6/16/53.

▲ Ill., Des Plaines—City, City Hall, storm sewers. $2,000,000. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Zone 6, consult. engrs. CD 12/13/51.

N. Y., Salina—Town of Salina, Sewer District No. 4, sanitary sewerage system, $426,000. CD 11/13/44.

Tenn., Sevierville—City, City Hall, sanitary sewerage imprvs. $700,000.

BRIDGES

MONTANA—State Hy. Comn., Capitol, Helena,

Stillwater Co.—steel bridge across Yellowstone River south of Columbus, $450,000.

Tex., Fort Worth—City, City Hall, concrete, steel vehicle and pedestrian bridge, Five Street across Clear Fork of Trinity River, $909,000. C. M. Thelin, Dir. P. Wks. Engr. CD 10/11/45.

Washington—State Hy. Comn., Olympia,

Spokane Co.—434 ft. bridge on Green St., Spokane, $400,000. W. A. Bugge, state hy. dir.

STREETS AND ROADS

Ill., Chicago—Cook Co., County Bldg., b. conc. paving 147 St. from Cicero Ave. to Dixie Hy. $350,000; c. conc. paving and storm sewers Calumet Expressway at 159 St., $200,000.

Tex., Kountze—Hardin Co., Kountze, voted bonds Oct. 9, imprvs. FTM roads and areas around small towns of Votaw, Scour Lake, Long Station and Silsbee, $575,000; road work, $75,000.

EARTHWORK, WATERWAYS

▲ Tex., Edinburg—Hidalgo Co. Comrs. Court, Edinburg, county-wide drainage system, $4,000,000. CD 7/30/53.

▲ Washington—Douglas County Public Utility District, Bridgeport, hydro-dam across Columbia River at Wells location, Aswell. $193,000,000. Puget Sound Power permit denied. CD 12/29, under Puget Sound Power & Light Co., Seattle, Wash., as owner.

AIRPORTS

▲† Ariz., Tucson—RUNWAY, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, primary runway exten., $855,000; paving overrun runway, $120,000; primary runway exten., $260,000; paving primary runway shoulder, $160,000; paving taxiway shoulders $93,000, Davis-Monthan Air Base. Johannessen & Girand, First National Bank Bldg., Phoenix, consult. engrs. CD 8/27.

▲ Calif., El Toro—DISPENSING FACILITIES, etc.—Dpt. Navy, San Diego, fuel dispensing facilities, navigational aids, aircraft maintenance facilities, utilities, Marine Corp Air Station. $1,675,000. CD 5/23/52.

▲† Calif., Miramar—NAVIGATIONAL AIDS, etc.—Dpt. Navy, San Diego, navigational aids, aircraft maintenance facilities, utilities, Naval Air Station. $4,001,000.

▲† **Calif., Point Mugu**—FACILITIES—Dpt. Navy, San Diego, testing facilities, administrative, maintenance and security facilities, Naval Air Missile Test Center. $1,132,000. CD 7/23/48.

▲† **Calif., San Diego**—FACILITIES—Dpt. Navy, San Diego, operational and aircraft maintenance facilities, Naval Air Station. $1,132,000. CD 5/23/52.

▲ **La., New Orleans**—AIR TERMINAL—City, Chep Morrison, mayor, City Hall, air terminal, $7,100,000; imprv. airfield and hangars, $2,216,000, Moisant Airfield. CD 12/29/44.

† **Nev., Las Vegas**—OFFICERS QUARTERS—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., men's officers quarters, $240,000, Bennett & Bennett, 3142 Wilshire Blvd., Los Angeles, Calif., consult. engrs.; stabilize runway shoulder $320,000; Base Maintenance Shop 1A $245,000, Koebig & Koebig, 3142 Wilshire Blvd., Los Angeles, Calif., consult. engrs. CD 12/10/52.

† **N. Y., Rome**—STORAGE SHOPS—U. S. Eng., 80 Lafayette St., New York, Zone 13, plans by Greenberg & Ames, 303 Fourth Ave., New York, Zone 10, ground electric storage shops, AMC, FY 53, Griffiss Air Force Base. $500,000-$1,000,000. CD 3/29/51.

▲ † **Tex., Del Rio**—RUNWAYS, etc.—U. S. Eng., Box 1229, Galveston, runways, $1,250,000; taxiways, $450,000; paved aprons, $275,000; fueling sys., $150,000; personnel housing, $1,250,000; storage, $450,000; administration-communications bldg., all for Laughlin Air Force Base. Addis E. Noonan Assocs. & Jerry Rogers, 803 American Hospital & Life Bldg., San Antonio, Tex., consult. engrs.-archts. CD 1/14/52.

▲ † **Tex., Harlingen**—BARRACKS, etc.—U. S. Eng., Box 1229 Galveston, barracks or housing, $1,100,000; storage, $375,000; administration-communications bldg. $365,000; shops, $200,000; fueling sys., $200,000; runways, $1,500,000; taxiways-aprons, $975,000, all for Harlingen Air Force Base. Addis E. Noonan Assocs. & Jerry Rogers, 803 American Hospital & Life Bldg., San Antonio, consult. engrs.-archts. CD 6/26/51.

▲† **Tex., Laredo**—HOUSING—U. S. Eng., Box 1229, Galveston, personnel housing, $1,000,000; fueling sys., $150,000; general storage, $325,000; shops, $375,000; misc. bldgs., $750,000; administration-communications bldg., $300,000; messes, $345,000, all at Laredo Air Force Base. Addis E. Noonan Assocs. & Jerry Rogers, 803 American Hospital & Life Bldg., San Antonio, consult. engrs.-archts. CD 9/16.

▲† **Tex., San Antonio**—HOUSING, etc.—U. S. Eng., P. O. Box 1229, Galveston, personnel housing $1,750,000; hangars, $750,000; runways, $1,500,000; taxiways and aprons, $875,000; administration and communications bldg., $350,000; storage, $475,000; AF fueling sys., $200,000, Brooks Air Force Base. Addis E. Noonan Assocs. & Jerry Rogers, 802 Am. Hospital & Life Bldg., San Antonio, Tex., consult. engrs.-archts. CD 4/30/52.

LATIN AMERICA

Mexico, Acapulco—Junta Federal Mejoras Materalales, Acapulco, Gro., plans waterworks. $800,000. CD 12/21/45.

PUBLIC BUILDINGS

▲ **Calif., Compton** — SCHOOL — Compton Union High School District, 417 W. Olive St., plans by Kistner, Wright & Kistner, 816 W. 5 St., Los Angeles, high school, $1,500,000.

▲ **Calif., Covina**—SCHOOL—Covina School Dist., Covina, plans by Kistner, Wright & Wright, 816 W. 5 St., Los Angeles, high school, $2,000,000. CD 11/13/51.

▲ **Calif., Daly City**—SCHOOLS—Jefferson Elementary School Dist. 344 Santa Barbara Ave., $1,486,000 bond election Dec. 7, school addns. CD 2/19/53.

Calif., Los Angeles—SCHOOLS—Bd. Educ., 1425 S. San Pedro St., plans by F. H. Furer, 6536 W. 86 Pl., Cantora St. School $360,000; plans by H. F. Withey, 14906 Ventura Blvd., Sunny Brae Ave. School, Canoga Park, $360,000. CD 6/13/52.

▲ **Calif., Petaluma**—SCHOOL—Petaluma City High School District of Sonoma Co., Petaluma, $1,750,000 bond election Dec. 7, school constr.

▲ **Calif., Sacramento**—SCHOOLS—Bd. Educ., Administration Bldg., 1619 N St., $13,500,000 bond election Feb. 15, schools. CD 5/23/51.

Calif., St. Helena—SCHOOL—St. Helena Unified School Dist., St. Helena, $530,000 bond election Nov. 16, school. CD 8/26.

▲† **Calif., San Diego**—PERSONNEL FACILITIES—Dpt. Navy, San Diego, personnel facilities at Naval Hospital, $756,000.

▲ **Colo., Colorado Springs**—POWER PLANT—City, 18 S. Nevada Ave., power plant addns. $2,500,000. Lutz & May, 819 Finance Bldg., Kansas City 6, Mo., consult. engrs. and archts.

▲ **Colo., Colorado Springs** — SCHOOLS — Bd Educ., School District No. 11, El Paso Co., 406 N. Weber St., voted bonds, schools. $3,300,000. CD 8/10.

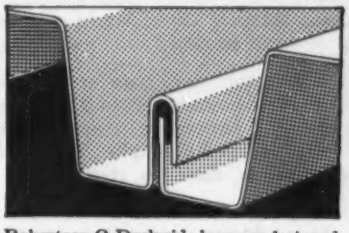
▲† **Colo., Denver**—FACILITIES—U. S. Defense Dpt., Rocky Mountain Arsenal, Denver, expansion facilities at Rocky Mountain Arsenal for assembly type ammunition. $8,000,000.

▲ **Del., Newark**—DORMITORY, etc.—University of Delaware, Newark, plans by Trautwein & Howard, 1441 Walnut St., Phila., Pa., women's dormitory, $400,000; dining hall $700,000.

Del., Wilmington—OFFICE—Life Insurance Co. of America, North American Bldg., office, Delaware Ave. $450,000.

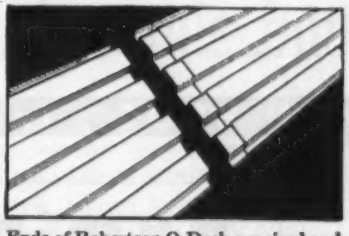
Quickly erected Q-Deck helps lower roof fire hazard

The many unique features of Robertson Q-Deck make it of special interest to the architect and engineer who is concerned about the fire hazard aspect of his flat roof design. Robertson Q-Deck is designed with tight side and end laps to eliminate the need for an inflammable vapor seal. Its two-foot width and long span characteristics mean fewer joints and its surface is either zinc coated or basic Galbestos.



Robertson Q-Deck side laps are designed to form a standing seam. A seal in the form of a continuous caulking material assures a vapor-tight joint.

A special Robertson clamping tool mechanically fastens the side laps together, forming a steel fire barrier that remains intact as long as the structural supports are in place.



Ends of Robertson Q-Deck are sized and countersunk to produce a tight, smooth, two-inch lap joint. This lap, along with the tight side laps, provides a vapor-sealed roof construction.

Excessive amounts of asphalt are eliminated on Robertson Q-Deck because the adhesive is applied to the *insulation . . . not to the steel deck*. This also results in a better bond between the steel and the insulation.

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▲ **Ill., Lansing**—SCHOOL—Thornton Twp., Lansing, plans by Consoer & Morgan, 351 E. Ohio St., Chicago, Zone 11, high school **$2,000,000**.

▲ **Ia., Cedar Rapids**—SCHOOLS—Bd. Educ., 346 2 Ave. S.E., plans by L. A. Daly Co., Insurance Bldg., Omaha, Neb., school **$3,000,000**; school **$2,950,000**. CD 6/9.

Kan., Topeka—ARMORY—State and Kansas National Guard, 2800 Topeka St., plans by John A. Brown, state archt., State House, Topeka, armory, **$425,000**.

Kan., Witchita—CHURCH—Calvary Methodist Church, 201 Lulu St., plans by Ted Mason, 519 S. Broadway, church, **$700,000**.

▲ **La., New Orleans**—CIVIC CENTER—City, Chep Morrison, mayor, City Hall, civic center replacing present city hall, **$9,222,800**. CD 1/19/50.

Mass., Needham—SCHOOL—Town, 1330 Highland Ave., Needham, plans by The Architects Collaborative, 96 Mt. Auburn St., Cambridge, elementary school, Highland Park area. **$450,000**. CD 8/2.

▲ **Mich., Allen Park**—HOSPITAL—Peoples Community Hospital Auth., Kenneth Gremore, exec. secy., Ypsilanti, plans by Smith-Hinchman & Grylls, 800 Marquette Bldg., Detroit, brick, steel general hospital, Old Goddard Rd. **$2,000,000**. CD 5/21/53.

▲ **Mich., Berrien Center**—HOME—Bd. Supervs. Berrien Co., 1121 Milton Rd., Benton Harbor, plans by Cuthbert & Cuthbert, 22222 Ford Rd., Dearborn, and Edward Duffield, assoc. archt., 119 N. Third St., Niles, convalescent home, central heating plant, 100,000 gal. water tank. **$1,300,000**.

Mich., East Lansing—LABORATORY—State, Dpt. Agriculture, East Lansing, laboratory unit on Michigan State Collete Campus. **$750,000**.

▲ **Mich., Lansing**—CIVIC CENTER—City, willie M. Brown, clk., City Hall, $4,500,000 bond election Oct. 25, complete financing civic center, fire houses, **$500,000**; police bldg., **$500,000**; municipal bldg., **$3,500,000**. Kenneth & Lee Black, 706 Capitol Savings & Loan Bldg., Lansing, archts. CD 6/18/52 and 8/13/53.

▲ **Mich., Wayne**—HOSPITAL—Peoples Community Hospital Auth., Kenneth W. Gremore, exec. secy., Ypsilanti, plans by Smith-Hinchman & Grylls, 800 Marquette Bldg., Detroit, general hospital, Annapolis and Venoy Sts. **$2,000,000**. CD 5/21/53.

Minn., Golden Valley (Minneapolis P. O.)—SCHOOL—Church of the Good Shepard, 1440 Lilac Dr., plans by E. V. Schaefer, 305 New York Bldg., St. Paul, school. **$430,000**.

Minn., St. Paul—PUBLIC HEALTH—City, J. R. Okonesky, clk., City Hall, Bureau Public Health, 101 E. 10 St., public health bldg. in block bounded by College, Tenth, Cedar and Wabasha Sts. **$901,980**.

▲† **Mo., St. Louis**—PLANT—Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C., and Mallinckrodt Chemical Works (operators), 3600 N. Second St., St. Louis, Zone 7, plans by Blaw-Knox Constr. Co., engr.-archt., Farmers Bank Bldg., Pittsburgh, Pa., expansion existing feed materials facilities to convert high grade uranium ore and concentrates into highly purified uranium compounds or metal at 65 Destrehan St. Incl. modification existing bldgs., equip., constr. new bldg., expansion of auxiliary facilities and utilities. **$6,500,000**. CD 10/18.

▲† **Mo., Weldon Springs**—PLANT—Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D.C., and Mallinckrodt Chemical Works (operators), 3600 N. Second St., St. Louis, Zone 7, plans by Blaw-Knox Constr. Co., engr.-archt., Farmers Bank Bldg., Pittsburgh, Pa., uranium processing plant for extracting and purifying uranium from uranium-bearing concentrates on eastern 200 acres of Weldon Springs Ordnance Works, consisting of purification unit, uranium chemical unit, foundry and suitable auxiliary facilities. **$33,300,000**. CD 10/18.

Mont., Bozeman—STUDENT UNION.—Bd. Educ., Helena, plans by O. Berg, Bozeman, Fred Wilson, Bozeman, Nordquist & Sundell, 512½ Ave. G. Billings, assoc. archts., student union bldg. addns., alterations, Montana State College. **$800,000**. CD 3/4.

† **N. J., Fort Monmouth**—B.O.Q.—U. S. Eng., 80 Lafayette St., New York 13, N. Y., plans by Levy & Scheingarten, 1120 E. Jersey St., Elizabeth, B.O.Q., Fy 55, **$100,000-$500,000**.

N. J., Glassboro—LIBRARY, etc.—State Div. Purchases & Property and State Bd. Educ., State House, Trenton, plans by Edwards & Green, 17 S. 5 St., Camden, library, **$450,000**, CD 3/27/52; food service bldg., **$400,000**, both at State Teachers College.

▲ **N. J., Paterson**—SCHOOL—Bd. Educ., 137 Ellison St., plans by Lawrence Licht, 19 Knickerbocker Rd., Englewood, Elementary School No. 27 in Hillcrest Section. **$1,500,000**.

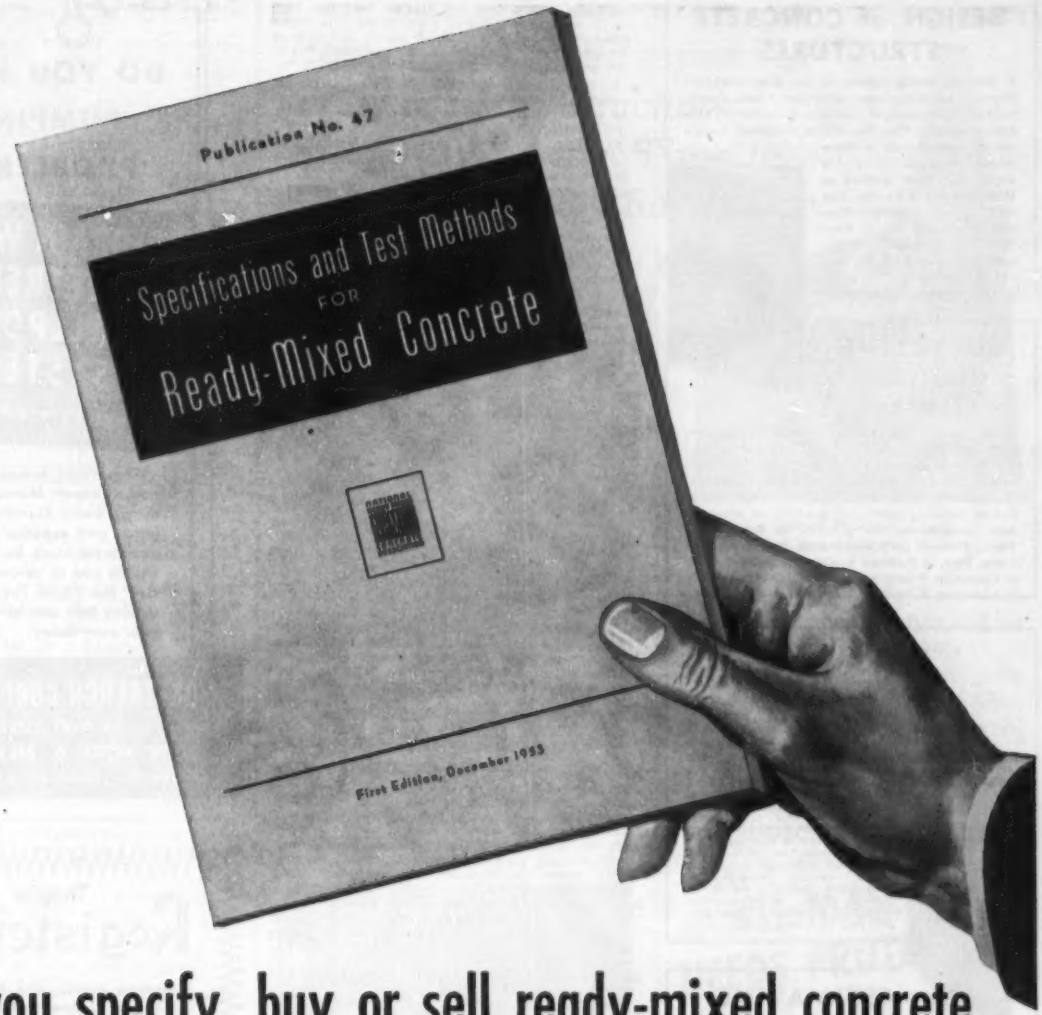
▲ **N. J., Princeton**—SCHOOLS—Bd. Educ., Moore St. voted **$1,715,000** bonds, Princeton High School addn. CD 9/3.

▲ **N. Y., Sea Cliff**—SCHOOL—Bd. Educ. plans by Emery, Roth & Sons, 575 Madison Ave., New York, Zone 22, Junior Senior High School on 30 acre tract on Glen Cove Ave. **$3,000,000**. CD 10/1.

N. Y., Syosset—SCHOOL—Central School District No. 2, Syosset, elementary school. **$500,000**.

▲† **N. Y., West Point**—ACADEMIC, etc.—U. S. Eng., 80 Lafayette St., New York, Zone 13, plans by William Gehron, 101 Park Ave., New York, Zone 17, converting riding hall to academic bldg., FY-55, **$5,000,000**; converting West Academy to barracks, FY 55, **$1,000,000-$3,000,000**, both U. S. Military Academy. CD 10/10/46.

▲ **O., Cleveland**—OFFICE DEVELOPMENT—Commerce Plaza Inc., Syndicate c/o Albert A. Levin, atty., National City Bank Bldg., Cleveland, Zone 14, plans



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(Continued from page 76)

by Emery Roth & Sons, 575 Madison Ave., New York, N. Y. and Dalton & Dalton, assoc. archts., The Arcade Cleveland, O., office development, two 20 story and one 11 story bldgs. 1,070,000 sq. ft. floor space, E. 30 St. and Euclid Ave. $25,000,000. CD 7/22.

▲ **O., New Richmond**—SCHOOL—Bd. Educ., Market St., voted $1,500,000 bonds, elementary school, alterations to present school, Grunkemeyer & Sullivan & Isaacs, 3717 Eastern St., Cincinnati, archts. CD 9/3/53.

▲ **Pa., Phila.**—RESEARCH SURGERY SECTION— University of Pennsylvania, 209 S. 36 St., Research Surgery Section, I. S. Ravdin Institute, $3,500,000. CD 2/2/49.

Tex., Amarillo—POLICE, JAIL, COURTS—City, City Hall, plans by J. Roy Smith & Earl Wossum, Associate, 716 W. 18 St., 1 and 2 story, brick, concrete police, jail and courts bldg. $435,000. Richard M. Steward, 606 Adams St., Amarillo, Yandell, Cowan & Love, Ft. Worth Natl. Bank Bldg., Fort Worth, and Frank Harrison, 210 W. 16 St., Amarillo, consult. engrs. CD 8/25.

▲ **Tex., Pasadena**—DWELLINGS—T. E. Braswell, Developer, 702 Mulberry Lane, Houston, plans by Dunaway & Jones, 4919 Montrose Blvd., Houston, 24 brick dwellings, $330,000; 32 frame, cedar shake dwellings, $369,075; 28 cedar shake dwellings, $358,145 all on concrete slab fdn., addnl. development in Revalon Terrace.

Tex., Quitman—HOSPITAL—Wood Co., Quitman, plans by Wyatt C. Hedrick, 904 Ft. Worth Ave., Box 5055, Dallas, 60-bed county hospital. $500,000.

Tex., Weatherford—HIGH SCHOOL—Weatherford Independent School Dist., Weatherford, voted bonds Oct. 9, high school. $600,000.

Tex., Wichita Falls—SCHOOL—Wichita Falls Independent School Dist., Wichita Falls, plans by Ray C. Arnhold, 916 9 St., Wichita Falls, and Wm. B. Ittner, Inc., 911 Locust St., St. Louis, Mo., 30-room, brick, concrete Junior High School $895,000. CD 10/1.

Utah, Price—HOSPITAL—City and County Hospital Assn., Price, present city-county hospital addn. $700,000. CD 8/20/46.

Vt., Rutland—SCHOOL—City School Dpt., Rutland, plans by Webber & Eickson, 56½ Merchants Row, Junior High School adjacent to present high school. $750,000. Nichols & Butterfield, 967 Farmington Ave., West Hartford, Conn., consult. archts. CD 5/27/53.

▲ **Wis., Waukesha**—SCHOOL—Bd. Educ., Waukesha, plans by Ebling, Plunkett & Keymar, 1220 N. Milwaukee St., Milwaukee, Zone 2, high school. $2,500,000.

Wyo., Lander—COURT HOUSE—Comns. Fremont Co., Court House, 1 story, full bsmnt., present court house addn., and remodeling present bldg., $500,000. Robert Wehrli, 406 Wyo. Natl. Bank Bldg., Casper, consult. engr. and archt.

▲ **B. C., Burnaby**—HOSPITAL—Burnaby General Hospital, Burnaby, plans by Gardiner, Thornton & Partners, 1520 Alberni St., Vancouver, 125-bed hospital addn. $1,000,000.

Ont., Toronto—HOUSING—Metropolitan Toronto Housing Corp., c/o City Hall, low-rent housing, incl. 8 brick bldgs., incl. 16 units each, on 16-acre site on Kipling Ave. $700,000. Jackson & Ypes, 5453½ Yonge St., consult. engrs. CD 7/6.

Que., Montreal—SCHOOL—Catholic School Comn., 117 W. St. Catherine St., school, Parish of St. Eugene, on Rosemount Blvd. $400,000.

▲ **Que., Montreal**—RECREATION CENTER—St. Gabriel Recreation Centre Comn. c/o C. Robilliard, dir. Parks, City Hall, Montreal, plans by E. J. Turcotte, 1478 W. Ste. Catherine St., recreation center, Hibernia St. $1,000,000.

COMMERCIAL BUILDINGS

Calif., Los Angeles — DWELLINGS — Queensburg Homes, Inc., 14320 Central Ave., Compton, plans by C. G. Olsten, 8731 E. Firestone Blvd., Downey, 62 frame, stucco dwellings in Tract 16106, $600,000.

Calif., Orange—DWELLINGS—Anchor Constr. Co., 1015 Oakmont Ave., Santa Ana, plans by L. C. Major & Assocs., 11015 S. Paramount Blvd., Downey, 40 frame, stucco dwellings in Tract 2156, Collins and Grand Sts. $400,000.

Calif., Santa Ana—DWELLINGS—Orange County Development Co., c/o L. C. Major & Assocs., archts., 11015 S. Paramount Blvd., Downey, 50 frame, stucco dwellings in Tract 2060, $500,000.

Colo., Denver—OFFICE—Redding-Miller, Inc., c/o T. J. Moore, engr.-archt., 2052 S. Fillmore, 3 story, 28,000 sq. ft., rein.-con. office, First and Fillmore Sts. $560,000.

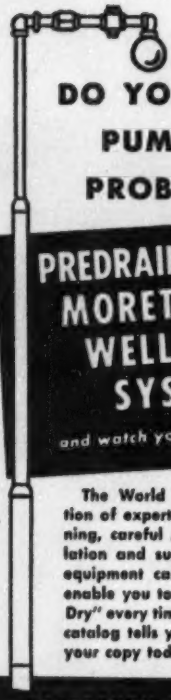
▲ **Ga., Savannah** — SHOPPING CENTER — Citizens & Southern National Bank, Marietta St., Atlanta, plans by Toombs & Co., 127 Walton St.N.W., Atlanta, shopping center, Over $2,000,000.

Ia., Fort Dodge—HOME—Methodist Home, Fort Dodge, plans by The Griffith Co, Warden Bldg., Friendship Haven Home for the Aged addn. $650,000. CD 10/4.

▲ **Mass., Wakefield** — OFFICE — American Mutual Liability Insurance Co., 142 Berkley St., Boston, home office north of Lake Quannapowitt near Rte. 128, $5,000,000. Site changed. CD 12/14, under Mass., Belmont.

▲ **Mich., Inkster**—SHOPPING CENTER—Cherry Hill Plaza, 103 N. Telegraph Rd., Dearborn, shopping center, incl. 30 stores, Cherry Hill and Inkster Rd. $1,000,000.

▲ **Mich., Redford**—SHOPPING CENTER—Parkview Shopping Center, Redford, plans by Charles F. Agree, 1140 Book Bldg., Detroit, Parkview Shopping Center,



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▲ **Minn., Minneapolis**—HOSPITAL—Fairview Hospital, 2312 South Sixth St., plans by Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, expansion hospital wing, $1,000,000.

Minn., St. Paul—CLUBHOUSE, etc.—Town & Country Club, 2279 Marshall Ave., plans by Toltz, King & Day, 1509 Pioneer Bldg., 2 story, 110x160 ft. clubhouse, roads, tennis court, $525,000; 60 ft. swimming pool, $80,000.

Miss., Pass Christian—MOTOR COURT—George Springer, Pass Christian, motor court, $500,000.

▲ **N. J., Moorestown**—SHOPPING CENTER, etc.—Owner, c/o William Fleet, 2045 Chestnut St., Phila., Pa., shopping center and 450 residences. $6,000,000. Alfred C. Lom, 1001 Wood St., Phila., Pa., consult. engr.

▲ **N. Y., Bayside**—HOME—Ozanam Hall, Inc., 202 St. and 43 Ave., plans by Beatty & Berlenback, 32 Court St., Brooklyn, Zone 2, home for the aged, 43 Ave. and 201 St. $2,500,000. CD 9/23/48.

▲ **N. Y., Forest Hills**—APARTMENT—Cord Meyer Development Co., 108-18 Queens Blvd., plans by Morris Rothstein, 186 Joralemon St., Brooklyn, Zone 2, 6 story apartment, 72 Drive and 112 St. $2,820,937.

N. Y., New York—APARTMENT—Peter Doelger, Inc., 407 E. 55 St., Zone 22, plans by Boak & Raad, 175 Fifth Ave., Zone 10, apartment, 412 E. 55 St. $850,000.

▲ **N. Y., New York**—APARTMENT—Gold Coast Realty Corp., 16 W. 46 St., Zone 19, plans by Maxon, Sells & Ficke, 724 Fifth Ave., Zone 19, apartment, 431-39 E. 79 St. and 430-38 E. 80 St. and 493-1509 York Ave. $1,211,000.

O., Canton—MOTEL HOTEL—C. L. Maier Co., 1407 Seventh St. N. W., motel-hotel, 800 Tuscarawas St. West, $500,000.

O., Columbus—OFFICE—Beacon Mutual Indemnity Co., 50 W. Gay St., plans by Benham, Richards & Armstrong, 1124 Goodale Blvd., 4 story, 70x111 ft., concrete, steel office, $500,000.

▲ **Ore., Salem**—STORE—J. J. Newberry Co., 600 S.W. Fifth St., Portland, will not construct department store. $3,000,000. Project abandoned. CD 3/29.

▲ **Pa., Bala Cynwyd**—APARTMENT—Home Life Insurance Co. of New York, Lincoln Liberty Bldg., Phila., apartment, Mill Creek Rd., etc. $1,000,000.

▲ **Pa., Bala Cynwyd**—SHOPPING CENTER—Owner, c/o Thalheimer & Weitz, archts., 1325 Walnut St., Phila., Pa., shopping center. $1,000,000.

▲ **Pa., Phila.**—CLASSROOM—Temple University, Broad and Berk Sts., Phila., 50-classroom bldg. $1,250,000. First unit of 10-year building program. CD 7/1/46.

Pa., Willow Grove — RESTAURANT — Horn & Hardart Baking Co., 208 S. Warnock St., Phila., plans by Ralph B. Bencker, 1601 Chestnut St., Phila., restaurant, $500,000.

▲ **Tex., Duncanville**—SHOPPING CENTERS, etc.—T. K. Irwin Sr., Irwin-Keasler Bldg., Dallas, Tex., Unit No. 1, new shopping center unit, $2,000,000.; Unit No. 2, new shopping center unit, $1,250,000; Unit No. 3, new shopping center unit, $1,350,000, all north of Duncanville and south of Dallas, on 43-acre tract known as "Redbird Shopping Center."

▲ **Tex., Grand Prairie**—DWELLINGS—Center Constr. Co., 4911 Greenville Ave., Dallas, Group 1, 40 dwellings, $390,500; Group 2, 28 dwellings, $309,175; Group 3, 37 dwellings, $358,295; Group 4, 33 dwellings, $333,615; Group 5, 41 dwellings, $402,185; Group 6, 44 dwellings, $427,000; Group 7, 30 dwellings, $329,500; Group 8, 35 dwellings, $344,690, 518-acre tract south of here.

▲ **Tex., Houston**—DWELLINGS—Jersey Village Corp., 1318 Suebarnett St., plans by Chris & Don Robinson, 2436 South Blvd., Lot No. 1, 4 masonry-type dwellings, $325,000; Lot No. 2, 6 masonry dwellings, $365,100; Lot 3. 15 masonry dwellings, $415,000; Lot 4, 20 masonry dwellings, $445,100; Lot 5, 18 brick dwellings, $378,000; Lot 6, 31 masonry dwellings, $350,190; Lot 7, 28 masonry dwellings, $348,150; Lot 8, 24 masonry dwellings, $368,450; Lot 9, 25 masonry dwellings, $380,125; Lot 10, 19 brick dwellings, $393,625; Lot 11, 8 brick dwellings, $375,000; portion of 5,000-acre Jersey Village.

▲ **Tex., San Antonio**—OFFICE—Col. Chas. Cheeve & Col. C. E. Brand, c/o K. Alexander, archt., 1366 E. Elmview and Clarence Rinard, 2015 Alamo Natl. Bldg., San Antonio, 11 story bsmnt., penthouse, 75,526 sq. ft., structural steel frame office bldg., 5100 Broadway. $1,250,000.

▲ **Alta., Edmonton** — HOUSING — C. F. MacLachlan Constr. Ltd., 12707 118 Ave., housing on 12.9 acre-site near Westmount Shopping Center. $1,000,000.

▲ **Alta., Edmonton**—SHOPPING CENTER—Shoppers Park Syndicate, Edmonton, plans by Rensaa & Minsos, 9310 Jasper Ave., shopping center, Whyte Ave. near 82 St. Approx. $3,500,000. CD 8/18/53.

Ont., Toronto—APARTMENT—Lemar Apartments Ltd., 154 Regina Ave., plans by S. Devore, 1695 Avenue Rd., 58-suite apartment, 131-137 Keuatin Ave. $575,000.

Ont., Toronto — APARTMENT — 218-226 Eglinton Ave. East Ltd., A. R. Hewitt, 66 Centre Ave., plans by W. Shulman, 467 Spadina Ave., 10 story apartment, incl. 98 apartment suites, 218-226 Eglinton Ave. E. $784,000.

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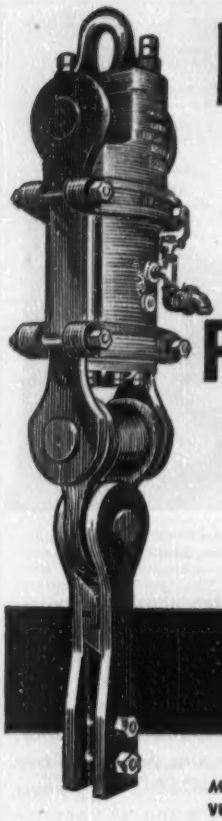

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▲ Ariz., Phoenix—REFINERY—M. M. Frost & Assocs., 3617 Caruth Blvd., Dallas, Tex., 20,000-bbl. refinery, $3,750,000.

▲ Calif., Newark—PLANT—American Forest Products Corp., 1 Montgomery St., San Francisco, mfg. plant $2,500,000.

Ga., Albany—PLANT—A. & M. Karagheusian Co., Albany, plant addn. $400,000.

Kan., Kansas City—PLANT—General Electric Supply Co. Div. General Electric Corp., 2101 Broadway, Kansas City, Mo., 1 story, 85,000 sq. ft. operations plant in Fairfax Industrial Dist. $750,000.

Minn., Minneapolis—FACTORY—Hoerner Boxes of Minneapolis, Inc., 1325 Quincy St. N.E., 1 story 135,000 sq. ft. factory, East River Rd. and 37 Ave. Northeast, $500,000.

N. J., Hammonton—WAREHOUSE, etc.—Raynor Mfg. Co., Egg Harbor Rd., plans by Wm. Dean Faint, Pennsauken, warehouse, shipping and office bldg.; also hardware mfg. plant, $500,000.

▲ N. M., Albuquerque—REFINERY—M. M. Frost & Assocs., 3617 Caruth Blvd., Dallas, Tex., 10,000 bbl. refinery, $2,750,000.

▲ O., Newark—PLANT—Rockwell Spring & Axle Corp., Ohio Axle & Gear Div., Newark, 340,000 sq. ft. plant addn., imprvs. $2,000,000.

Tex., Houston—PLANTS—Houston Steel Drum Co., Inc., 3918½ McKinney St., Unit 1, plant to recondition steel drums for use by oil, chemicals, paint industries, $400,000; Unit 2, structural steel and galvanized type plant, $300,000; Unit 3, structural steel and metal type plant, $250,000, 50-acre tract in San Jacinto Industrial Dist.

▲ Wyo., Casper—PLANT—Cheyenne Valley Pipe Line Co., c/o H. O. English, 254 S. Center St., natural gasoline plant. $1,000,000.

▲ Alta., Edmonton—STEEL MILL—United North Atlantic Securities, 107 Place d,Armes, Montreal, Que., steel mill. $1,000,000.

▲ B. C., Crofton—PULP MILL—B. C. Forest Products Ltd., 995 W. 6 Ave., Vancouver, pulp mill, near Chemainus. $25,000,000.

▲ Ont., Brockville—PLANT—Park Davis & Co., Ltd., 2301 E. Sandwich St., Walkerville, plant, $5,000,000. Giffels & Vallet of Canada Ltd., Windsor, consult. engrs. CD 5/7/53.

UNCLASSIFIED

Arkansas—RURAL DISTRIBUTION LINES, etc.—Clay County Electric Co-operative Corp., Corning, 61 mi. rural distr. lines, sub-station facilities and sys. imprvs., Clay Co. $885,000. CD 3/18/49.

▲† Calif., Coronado—PERSONNEL FACILITIES—Dpt. Navy, San Diego, personnel facilities, Naval Amphibious Base, $2,888,000.

Maryland—RURAL DISTRIBUTION LINES—Choptank Electric Co-operative, Denton, 75 mi. rural distr. lines, sys. imprvs., Caroline Co. $500,000. CD 12/27/48.

▲ Mass., Boston—OFF STREET PARKING FACILITY—City, Real Estate Comn., City Hall Annex, off-street parking facility North Station to Cross St., $1,500,000; off-street parking Dewey Square South Station, $1,000,000; off-street parking facility Massachusetts Ave., $100,000; off-street parking facilities, Scollay Square, $200,000.

Minnesota—TELEPHONE LINE—Crow Wing Co-operative Rural Telephone Co., J. Zumwalt, mgr., Brainerd, 432 mi. telephone lines, rebuilding 230 existing lines, Brainerd, $500,000. CD 1/2/52.

Mississippi—RURAL DISTRIBUTION LINES—Singing River Electric Power Assoc., Lucedale, 160 mi. rural distr. lines, 20 mi. 44 KV transmission line, sub-station facilities, sys. imprvs., Jackson Co., $610,000. CD 4/21/49.

N. Y., Buffalo—TELEVISION STATION—Great Lakes Television, Inc., 785 Main St., television station. $638,000. George P. Adair, 1610 Eye St. N. W., Wash. 6, D. C., consult. engr.

N. Y., Buffalo—TELEVISION STATION—Niagara Frontier Amusement Corp., 70 Niagara St., television station. $599,000. Page, Creutz, Garrison & Waldschmitt, 710 14 St., N. W., Wash. 5, D. C., consult. engrs.

N. Y., Carthage—TELEVISION STATION—The Brockway Co., 120 Arcade St., Watertown, television station. $475,000. George C. Davis, Munsey Bldg., Wash. 4, D. C., consult. engr.

N. Y., Rochester—TELEVISION STATION—Star Broadcasting Co., Inc., 87 Seneca St., Geneva, television station (WCBF-TV), $427,000. Craven, Lohnes & Culver, Munsey Bldg., Wash. 4, D. C., consult. engrs.

N. C., Charlotte—TELEVISION STATION—Carolina Television Corp., 112 S. Tryon St., television station, $966,000. Jansky & Bailey, Inc., 1735 De Sales St. N. W., Wash. 6, D. C., consult. engr.

▲† Washington — RAILROAD GRADING — U. S. Eng., Pittock Block, Portland, Ore., grading S.P. & S. RR, North Dallas to Wishram, Klickitat Co., Over $1,000,000. J. U. Moorhead, Pittock Blvd., Portland, Ore., engr.

▲ Wyoming—GAS PIPE LINE—Cheyenne Valley Pipe Line Co., H. O. English, 254 S. Center St., Casper, 98 mi. 10 in. gas pipe line, $2,800,000.

Ont., Toronto—SWIMMING POOL—City, City Hall, Olympic-size swimming pool in Riverdale Park, $500,000. CD 12/5/46.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 9, 23 Massachusetts
STREETS AND ROADS
November 9 Massachusetts

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
American Bridge Div. U. S. Steel Corp., 1414 Statler Bldg., Boston, Mass. CA **$1,772,657**, est. $1,700,000. superstructure steelwork bridge over Connecticut River thruway Boston to New York State Line, Contr. 51-060, West Springfield-Chicopee. CD 10/1, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 9, 23 Maryland November 19 Pennsylvania
STREETS AND ROADS
November 9 Maryland November 18 New York
November 19 Pennsylvania

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Brookfield Constr. Co., Inc., 521 5th Ave., New York, N. Y., CA **$2,324,734**. est. $3,022,000. 1.29 mi. Brooklyn-Queens Expressway, Contr. 7A, FABQE. 54-1, Kings Co.;
DeLillo Constr. Co., Inc., 216 W. Merrick Rd., Valley Stream, N. Y., CA **$855,223**, est. $963,000, 0.53 mi. Brooklyn-Queens Expressway, Cont. 6A. FABQE 54-2, Kings Co.;
Grow Constr. Co., Inc., 313 W. 53 St., New York 13, N. Y. CA **$787,926**, est. $881,000, 0.17 mi. City of Binghamton, Court St. Arterial Hy. (Erie & D. L. & W. R.R. Brs.); FGC 54-12, Broome Co.; CA **$669,936**, est. $688,000, 0.33 mi. Fort Plain-St. Johnsville (C. R. 65) FASS 54-14, Montgomery Co.;
The Lane Constr. Corp., 37 Colony St., Meriden, Conn. CA **$5,800,504**, est. 8,342,000, 10.63 mi. Bloomingburg-Monticello, Pt. 2 and Pt. 1, SH 5457-5510-5510A, Port Jervis-Wurtsboro, Pt. 2, SH 8287, FARC. 54-101, Sullivan Co.;
A. S. Wikstrom, Inc., Skaneateles, N. Y., CA **$1,296,636**, est. $1,297,000, 0.71 mi. Albany City; Riverfront Arterial Hy. (Cont. 1), Albany Co. Grand total $11,734,959. Bids Sept. 16. CD 9/22 under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
Nello L. Teer Co., P. O. Box 1131, Durham, N. C., LB **$3,669,071**, grading, drainage, 35 ft. and variable in width 2.51 mi. between South Heights and Aliquippa, Application Rte. 3955 in South Heights and Aliquippa Boros, Hopewell Twp., Beaver Co.;
A. C. Hack & Sons, Inc., Lightstreet Rd., Bloomsburg, Pa., LB **$479,693**, constr. 0.47 mi. rein.-con. pavement, 44-ft. wide; one I-beam bridge over Lycoming Creek; widen existing pavement with plain concrete base and surf. new base and existing pavement with bit. U. S. Rte. 220, City of Williamsport, Lycoming Co. Bids Oct. 22. CD 9/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **S. S. Silberblatt, Inc.**, 25 W. 45 St., New York 19, N. Y., LB **$4,587,000**, general constr. and fdn.;
Harry Starkman & Bros., 348 Brook Ave., New York 54, N. Y. LB **$377,630**, heating and ventilating;
Brown Electric Co., 250 E. 43 St., New York 17, N. Y. LB **$347,837**, electrical work;
Paramount Plumbing & Heating Co., 336 E. 92 St., New York 28, N. Y., LB **$536,300**, plumbing for Forest HOUSES, Proj. No. NYS-57, Sec. II, incl. Bldgs. Nos. 8 to 15 (inclusive) and gymnasium of Bldg. 10 in area bounded generally by E. 164 St., Jackson Ave., E. 165 St., Tinton Ave., E. 163 St., Trinity Ave., NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Oct. 26. CD 10/18.

▲ **Country Gardens Homes**, c/o Albert B. Meklenburg Organization, Inc., 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. **$1,500,000**. 112 HOUSES, Clay Pits Rd. east of Larkfield Rd., EAST NORTHPORT, N. Y.

▲ **Ranes Constr. Corp.**, 151 Montague St., Brooklyn 2, N. Y. LB **$1,996,630**. general constr. JUNIOR HIGH SCHOOL 59, Ridgedale, Grayson and Lucas Sts., Queens Boro, E-665, SPRINGFIELD, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Oct. 21. CD 9/27.

▲ **Hillside Terrace, Inc.**, c/o William Paul LaVallee, archt., 231 Post Rd., Westbury, N. Y. Owner Builds. **$3,600,000**. 300 HOUSES, 174-acre tract, Pulaski Rd., Park Ave. and Lake Rd., HUNTINGTON, N. Y.

▲ **The Birches**, c/o Albert B. Meklenburg Organization, Inc., 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. **$2,600,000**. 125 HOUSES, 23-acre tract, Overlook and Lattingtown Rds., LATTINGTOWN, N. Y.

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Projected returns from 42.6% of plants contacted showed an estimated 678 plants using engines in the stated category, representing total engine purchases of 2,727,216.

Answering the question: "Who makes the Internal Combustion Engines you Use?" . . . Wisconsin Motor Corporation received 132 mentions, as against 105 for the second place builder, 56 for No. 3, 51 for No. 4—in a list of 41 classified engine manufacturers.

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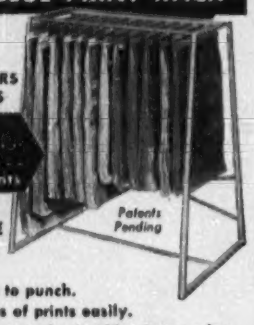

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▲ **Budget Built Homes**, c/o Bonded Realty Corp., Sunrise Hy., Lindenhurst, N. Y. Owner Builds. $1,400,000. 120 HOUSES, Park Blvd. and Harmony Dr., MASSAPEQUA PARK, N. Y.

▲ **Kay Constr. Co.**, 12501 Connecticut Ave., Silver Spring, Md. Owner Builds. $40,000,000, home community of 2,000 brick detached HOMES known as Kent Mill Estates on 500 acre tract bounded by Kent Mill Rd., Old Bladensburg Rd. and Arcola Dr., SILVER SPRING, MD.

▲ **Bush Development Corp., Flat Iron Bldg.**, Norfolk, Va., Owner Builds, $5,000,000. 8 story, steel, masonry APARTMENT, 4600 Block of Connecticut Ave. N.W., WASH., D. C., Milton Prassas, 5915 Mass. Ave. N.W., Wash., D. C., archt. CD 5/4/53.

SOUTH

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Merritt-Chapman & Scott Corp.**, 260 Madison Ave., New York, N. Y., CA $19,050,461. Hampton Roads tunnel and bridges, Contr. C-2, Alt. 2, VIRGINIA. Commonwealth of VIRGINIA, Dpt. Hys., Central Office Bldg., 1221 E. Broad St., Richmond, Va. Bids Oct. 8. CD 9/11 under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

J. B. Michael & Co., Inc., 1021 Haywood St., Memphis, Tenn. CA $2,989,038. c. conc. 12.3 mi. S.P. 47-69 and SP 15-574, Kentucky Turnpike Proj. No. 1 Contr. 7, Hardin and Bullitt Counties. CD 10/26, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **J. A. Jones Constr. Co.**, 209 W. 4 St., Charlotte, N. C., LB $1,634,464, one-company type BARRACKS, ENG-31-075-55-16, FORT BRAGG, N. C. U. S. Eng., 308 Customhouse, Wilmington, N. C. Bids Oct. 19. CD 10/1.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
November 23, Ohio

BIDS ASKED—BUILDINGS

▲ **Wis., Milwaukee**—HOSPITAL—BA 11/10—Franciscan Sisters, 1845 N. 4 St., 6 story, ground floor, bsmnt., rein.-con., brick, steel, St. Michael's Hospital, $6,000,000. Extended date. R. R. Ranft, 3606 Gravois Ave., St. Louis, Mo., archt. CD 9/21.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Power Constr. Co.**, 125 S. Marion St., Oak Park, Ill., LB, $1,537,536, 1 and 2 story, Elmwood Park HIGH SCHOOL, ELMWOOD PARK, ILL. School Dist. 232, 2319 76 Ave., Elmwood Park, Ill. Bids Oct. 14. CD 9/29.

▲ **Chicago Land Constr. Co.**, 100 W. Chicago St., Chicago, 10, Ill., CA, $2,800,000. 2800 HOMES, PARK FOREST, ILL. American Community Builders, 105 W. Monroe St., Chicago, Ill.

▲ **G. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. CA $1,850,000. general contract automotive engineering LABORATORY, ANN ARBOR, MICH. Bd. Regents, University of Michigan, W. K. Pierpont, vice pres., Plants Service Bldg., Ann Arbor, Mich. Bids Oct. 12. CD 9/17.

▲ **Stieber Realty Co.**, 4650 Chene St., Detroit 7, Mich. Owner Builds. Est. $4,000,000. 400 or more brick ranch HOMES, Huron Estates, Gibralter, Allen Rd., Fort St., FLAT ROCK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ **Tex., Longview**—BANK, etc.—BA 11/30—First National Bank, Longview, 10 story, steel, stone, granite, brick, bank and office, bsmnt. and fdn. designed to carry total of 17 story. $1,500,000. Plans deposit $35. Alfred C. Finn, 1005 Bankers Mortgage Bldg., Houston, archt. Reg. F. Taylor, Bankers Mortgage Bldg., and Robert J. Cummins, Bankers Mortgage Bldg., Houston, engrs. CD 12/29/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **M. E. Gilliss**, Monett, Mo. CA $1,652,765, dam and reservoir, SPRINGFIELD, MO. Springfield City Water Co., 710 Bonneville St., Springfield, Mo. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Ill., engrs. CD 2/10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Johnson, Drake & Piper** Baker Bldg., Minneapolis, Minn. CA Approx. $3,500,000. general contract 4 story, 100,000 sq. ft. OFFICE, Lake St. NW shore of Lake Calhoun, MINNEAPOLIS, MINN. Hardware Mutual Insurance Co. 2344 Nicollet Ave., Minneapolis, Minn. CD 7/14.

▲ **Farnsworth & Chambers Co., Inc.**, Box 74, Houston, Tex. CA $2,075,162, 3 story, bsmnt. for Joskes SHOPPING CENTER area; CA $1,079,000, superstruc-

ture main bldg. of shopping center, HOUSTON, TEX. Gulfgate Shopping Center, c/o Theodore W. Berenson & Assocs., 50 Federal St., Boston, Mass., and Ben McGuire, Bankers Mortgage Bldg., Houston, Tex. CD 9/10, under LB.

▲ **H. C. Beck Co.**, 607 First Natl. Bank Bldg., Dallas, Tex., CA $5,013,000. general contract 8 story home OFFICE, SAN ANTONIO, TEX. United Services Automobile Assn., 1400 E. Grayson St., San Antonio, Tex. Bids Oct. 5. CD 10/8, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
November 17, 18 California
STREETS AND ROADS
November 17, 18 California

BIDS ASKED—BUILDINGS

▲ **Calif., Mojave**—PLANT—BA 11/16—California Portland Cement Co., 612 S. Flower St., Los Angeles, cement plant, $12,000,000. Extended date. Donald R. Warren, 3109 Wilshire Blvd., Los Angeles, engr. CD 10/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Leavitt-Chandler & Co.**, Kirkland, Wash., CA, $1,500,000. 1 story, 480x600 ft., rein.-con. MATERIAL HANDLING BLDG., SEATTLE, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Wash. Bids Sept. 30. Harmon, Pray & Detrich, Lloyd Bldg., Seattle, archts. CD 5/20.

▲ **Vinnell Co., Inc.**, 1145 Westminster Ave., Alhambra, Calif., CA, $2,393,355, est. $2,000,000. Proj. 131, Northeast storm drain, Long Beach, LOS ANGELES, CALIF. Los Angeles County Flood Control dist., 2250 Alcazar St., Los Angeles, Calif. Bids Oct. 8. CD 10/14, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Whitewood, Inc.**, 10522 Santa Gertrudes, Whittier, Calif., Owner Builds, $1,443,600, 126 frame, stucco DWELLINGS, Messina, Scott and Sterbruk Sts., WHITTIER, CALIF.

CANADA

BIDS ASKED—BUILDINGS

▲ **Que., Dorval**—APARTMENT BLOCKS—BA 11/12—Dorval Gardens Ltd., c/o R. Fisher, archt., 3177 St. Sulpice Rd., Montreal, 21 apartment blocks, incl. 12-suites each on new street, $1,500,000.

▲ **Ont., Toronto**—OFFICE—BA 11/15—Imperial Oil Ltd., 56 Church St., general contract, 19 story office, St. Clair Ave. W. and Foxbar Rd. $8,000,000. Wallace Carruthers, & Assocs., Ltd., 35 Isabella St., engrs. Mathers & Haldenby, 15 St. Mary St., archts. CD 6/18/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Bird Constr. Co. Ltd.**, Sargent and Erin Sts. Winnipeg, Man., CA $2,000,000. arena, St. Matthews and Rapelje Aves., WINNIPEG, MAN. Winnipeg Enterprises Ltd., Winnipeg, Man. Awarded Oct. 21. CD 2/4.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Poole Constr. Co. Ltd.**, 10503 109 St., Edmonton, Alta. CA, Est. $2,000,000, 9 story, concrete, steel, brick, stone CITY HALL, EDMONTON, ALTA. Municipality, City Hall, Edmonton, Alta. Bids Oct. 13. CD 9/24.

▲ **Commonwealth Constr. Co., Ltd.**, 300 Royal Bank Bldg., Winnipeg, Man., CA, $2,500,000. NURSES HOME, WINNIPEG, MAN. Misericorde Hospital Bd Cornish Ave., Winnipeg, Man. Norwood & Assocs., 406 Manton Bldg., Winnipeg, Man., archts.

▲ **Brookfield Constr. Co. Ltd.**, 32 Inglis St., Halifax, N. S. LB $2,605,000 (limestone) $2,589,000 (sandstone) 8 story, steel, brick, stone FEDERAL GOVERNMENT BLDG., Hollis St., HALIFAX, N. S. Dpt. P Wks., Hunter Bldg., Ottawa, Ont. Bids Oct. 20. CD 9/15.

▲ **Sir Lindsay Parkinson Ltd.**, 52 St. Clair Ave. E., Toronto, Ont., CA $2,081,558, HOME for the Aged, Eagle St., NEWMARKET, ONT. Municipality of Metropolitan Toronto, 65 Adelaide St., Toronto, Ont. Bids Oct. 19. CD 10/26, under LB.

▲ **Granada Investments Ltd.**, 1545 Bathurst St., Toronto Ont., Owner Builds, $1,512,000. three APARTMENTS, Heath St. W., east of Oaklawn Gardens, TORONTO, ONT. E. I. Richmond, 455 Spadina Ave., Toronto, Ont. archt.

▲ **Sir Robert McAlpine & Sons**, 38 King St. W. Toronto, Ont., CA, $1,750,000. two naval STORES La Salle, MONTREAL, QUE. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont.

▲ **A. Guevremont Constr. Ltd.**, 2775 Levesque Blvd., St. Vincent de Paul, Que. CA, Est. $3,240,000. concrete, brick, stone BUNGALOWS, ST. VINCENT DE PAUL, QUE. North East Co., 400 St. Helen St., Montreal

(Proposal Advertisements see pp. 93 to 95)

WHEN WILL

SCHRAMM

BUILD A

ROTARY COMPRESSOR?

Schramm might build a rotary compressor when the rotary compressor *can* be built that will perform better than the Schramm UNISTAGE compressors they are now building.

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Use as little fuel as the Schramm UNISTAGE

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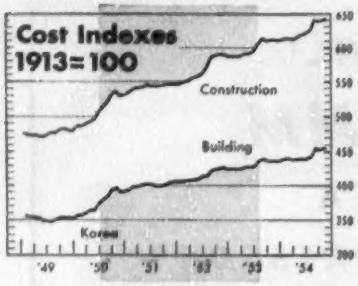
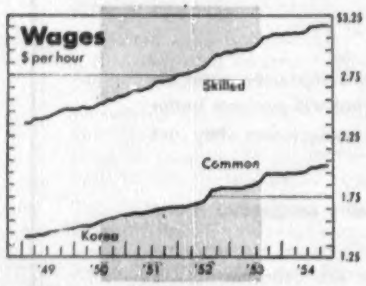
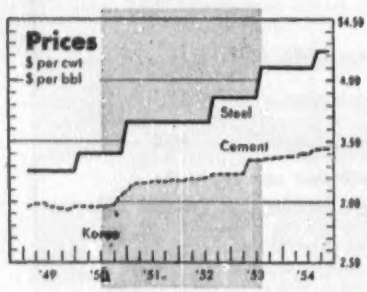


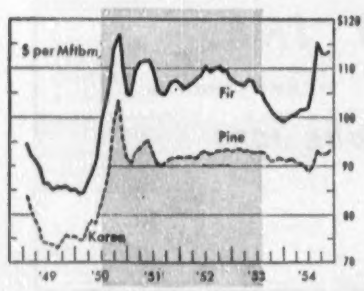
ENR INDEXES (1913=100), 20-cities' average	1954 Nov.	% Change from last Month	% Change from last Year
Construction Cost	643.02	+0.2	+5.1
Building Cost	456.34	+0.2	+4.7
WAGE RATES, 20-cities' average			
Common	$2.022	+0.1	+4.6
Skilled (aver. 3 trades)	3.184	+0.1	+3.3
Bricklayers	3.457	+0.1	+2.8
Structural Ironworkers	3.160	+0.2	+3.9
Carpenters	2.936	+0.1	+3.4
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	3.463	+0.1	+3.8
Structural Steel, (3-mill aver.), per cwt	4.250	0.0	+3.7
Sand, per ton	2.251	0.0	+3.5
Lumber, 2x4 Fir, per M. ft. bm	113.708	+0.7	+13.8
Lumber, 2x4 Pine, per M. ft. bm	93.233	+0.3	+1.8
Common brick, per M	33.237	0.0	+0.1
Ready-mixed concrete, per c. y	12.225	+0.2	+2.2
Structural Clay Tile, 3x12x12 per M	162.585	+0.3	+1.7





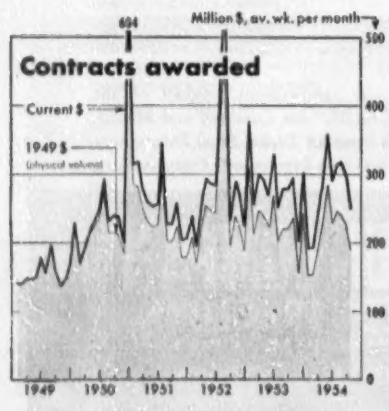
CONTRACTS AWARDED (Millions)	1954 Oct. (4-Weeks)*	10-Mos. (43-Weeks)*	% Change from '53 Oct. (5-Weeks)*	10-Mos. (44-Weeks)*
Total U. S. (ENR reported)	$995.8	$11,824.0	−15.3	− 6.0
Private	523.3	6,692.1	−23.6	− 6.6
Public	472.5	5,131.9	− 3.6	− 5.1
Federal	118.8	1,039.3	+33.3	−16.0
ENR Volume Index, '13 = 100	423	478	−19.9	− 7.5
NEW CAPITAL (Millions)				
Total	586.7	9,866.1	+ 6.2	+ 0.3
State & Municipal Bond Sales	355.4	4,541.2	+ 3.3	+20.2
Corporate Security Sales	222.1	2,444.1	+11.5	−33.0
Federal (non-federal work)	9.2	774.3	0.0	− 9.1
Federal (federal work)	.....	2,106.5	.....	+35.1

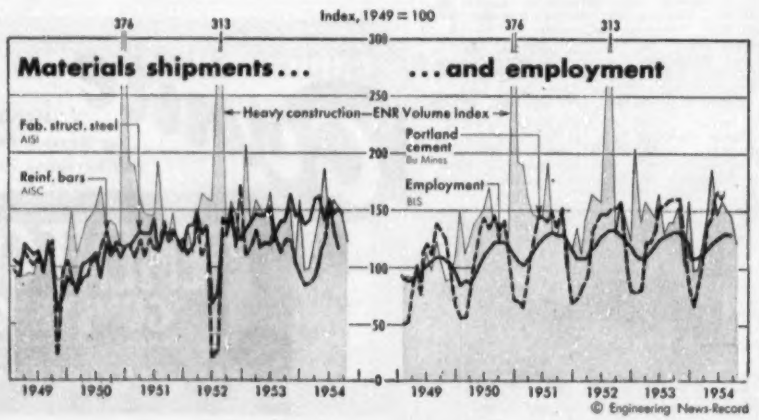
* Computed on weekly average



MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1954 Aug. (A) Sept. (S)	8-Mos. (8) 9-Mos. (9)	% Change from '53 Mo.	Yr.-Cum.
Cement, bbls, Bu. of Mines	28.802(A)	178.658(8)	+ 6.3	+3.7
Fabr. Struc. Steel, tons AISC	.265(S)	2.424(9)	+ 3.5	+5.5
Lumber, mil. ft. bm., NLMA	2.913(A)	24.727(8)	−10.0	−6.5
Lumber Prod., mil. ft. bm., NLMA	2.887(A)	24.646(8)	−15.8	−6.2
Contract Const. Employ., BLS	2.807(S)	2.607(9)†	− 2.1	+1.5

† Average





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Positive, automatic lubrication of all stem threads and bearing surfaces each time hydrant is operated.

"O" RING SEALS
Permanent, water-tight seal without adjustments or binding.

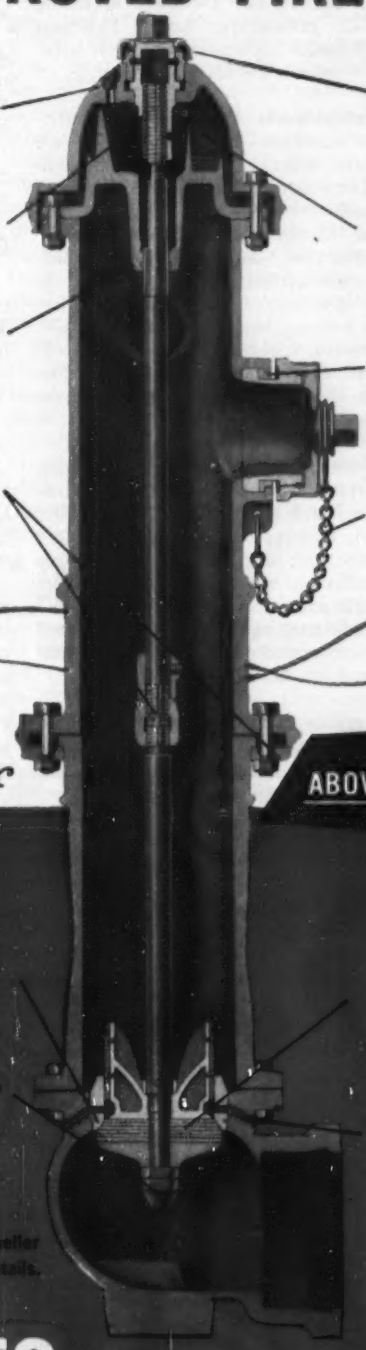
SAFETY FLANGE AND SAFETY STEM COUPLING
Prevent damage and permit convenient facing of nozzles, addition of extension sections or changing of upper barrel for different nozzle arrangements quickly, easily, inexpensively . . . all without digging or water shut-off.

BRONZE WEATHER CAP
Prevents freezing of operating nut and discourages tampering.

DRY TOP DESIGN
Operating threads and bearing surfaces sealed from water.

BREECH-LOCKED NOZZLES
Interlocking lugs and calking prevent blow-out. Easily removed if necessary.

NON-KINKING CHAINS
Each chain individually attached directly under nozzle.



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BRONZE SEAT RING
Straight threads and copper asbestos gasket permit easy removal of seat ring.

BRONZE CAP NUT
Locks and seals stem threads to prevent corrosion.

COMPRESSION-TYPE MAIN VALVE
Closes with water pressure...stays closed without strain...permits repairs or changes without water shut-off.

DOUBLE DRAIN OPENINGS
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2501 Chestnut St., Chattanooga, Tennessee

Contract Awards Lose Steam in October

Higher federal volume offset by drop in state and local public works lettings; private contracts also take a dip

The fast pace set by heavy construction contracts during the third quarter slacked off in October. Awards totaled $996 million last month, as reported by ENR. This was 16% less than in September and 15% lower than a year ago on a weekly average basis (last month had four contract weeks compared with five weeks in September '54 and October '53).

The lower October volume—smallest for the month since 1950—widened the gap a little between '54 and '53. For the first 10 months of this year awards total $11.8 million, 6% below '53, compared with a 5% decline at the end of September. So far, 1954 is the third highest year on record in total contract dollars.

• **Federal gains**—October contracts for federal work were higher for the second consecutive month, averaging nearly $30 million per week. As a result, total federal construction volume in '54 is now 16% below '53, compared with a 20% drop at the end of September.

Offseting the rise in federal, state and local construction awards declined to $88.4 million per week, 20% below the September rate and 12% less than in October '53. Private contracts also fell off in October, averaging $130.8 million per week. This was 18% under September and 24% lower than private awards a year ago.

• **Public works**—Earthwork and waterway contracts climbed sharply last month, reflecting the step-up in federal contract letting. It was the biggest month for this type of work since June '53, about three times the weekly volume in September '54. Awards were also up last month for waterworks and sewerage while public buildings and housing held more or less steady. However, highway and bridge awards were off sharply for the month. Despite the drop, highway contracts were about the same as a year ago.

• **Private construction**—Mass housing contracts were strong last month, although well below the high September level. Commercial building held close to the fast pace of the previous two months and was 66% higher than the weekly average a year ago.

Industrial building awards declined for the second consecutive month and were 65% below October '53.

• **Regions**—New England, the Middle Atlantic and the West of the Mississippi extended their leads over '53 volume last month. The Middle Atlantic now has an 8% increase compared to 6% a month ago. New England and the West of the Misssissippi increased their gains over '53 by one percentage point to 19% and 4%, respectively.

In contrast, the Middle West is down 15% from '53, whereas it was only 10% behind at the end of September, and in the Far West the gap has widened from −4% to −10%.

The South is narrowing its '53-'54 gap, but remains 26% below the first ten months of last year.

Costs Are Stable

For the second consecutive month construction costs show little change. The ENR Construction Cost Index for November is 643.02, based on 1913 = 100, 0.2% above the October value. The Building Cost Index is 456.34 (1913 = 100), also 0.2% above last month.

Despite little change this month, the Construction Cost and Building Cost Indexes are at all-time highs, 5.1% and 4.7%, respectively above a year ago.

Lumber prices reflect continued upward pressure, with fir 2x4 prices moving higher in seven of the 20 cities covered by the indexes. Pine prices are up in three cities. However, a sharp break in Dallas pine prices and a decline in Cleveland fir prices partly offset increases in other cities.

ENGINEERING CONSTRUCTION CONTRACTS—OCTOBER 1954

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Four Weeks—Thousands of Dollars (000 Omitted)

	October, 1954							U. S. Cumulative Ten Months		% Change '53 to '54	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1954 (43 weeks)	1953 (44 weeks)	Av. Wk.	October 1954
Public Works											
Waterworks	2,703	1,295	7,227	2,608	10,062	1,043	25,028	200,041	200,924	+ 2	1,811
Sewerage	1,828	6,584	11,976	3,896	4,732	6,777	35,793	317,638	370,603	−12	1,398
Bridges	600	2,715	9,459	5,752	6,059	2,414	26,999	409,801	589,222	−29	1,153
Earthwork and drainage	694	2,194	5,621	631	29,989	26,021	65,150	272,322	314,078	−11	3,329
Streets and roads	5,428	17,500	34,162	16,325	38,363	25,104	136,882	1,586,301	1,532,129	+ 6	2,558
Public buildings, residential	.....	7,020	5,422	2,270	728	.....	15,440	198,287	340,793	−40	1,346
Other public buildings	10,085	22,764	18,955	20,327	31,558	20,922	125,511	1,449,285	1,460,159	+ 2	19,045
Unclassified	2,047	9,715	5,979	1,268	16,193	6,497	41,699	704,239	726,726	− 1	10,775
Total public	24,285	69,787	98,801	53,167	137,684	88,778	472,502	5,131,905	5,534,724	− 5	41,415
Federal government (included in above classifications)	2,213	8,971	20,246	1,044	48,509	37,807	118,790	1,039,308	1,266,334	−16	21,973
Private											
Bridges	.....	.....	300	.....	.....	.....	300	6,950	7,565	− 6	.....
Industrial buildings	4,142	27,241	13,230	27,517	36,470	9,149	117,749	1,572,685	2,460,463	−35	24,587
Mass housing	8,310	103,732	27,097	41,623	71,716	28,290	280,768	3,491,760	3,050,451	+17	22,064
Commercial buildings	4,058	38,562	12,819	29,929	18,210	5,050	108,628	1,122,859	1,005,611	+14	5,925
Unclassified	97	100	744	1,075	12,849	969	15,834	497,806	806,843	−37	1,540
Total private	16,607	169,635	54,190	100,144	139,245	43,458	523,279	6,692,060	7,330,933	− 7	54,116
Total Engineering Construction:											
October, 1954—4 weeks	40,892	239,422	152,991	153,311	276,929	132,236	995,781	.....	.....	....	95,531
September, 1954—5 weeks	81,656	359,878	207,070	293,165	329,952	146,832	1,478,553	.....	.....	....	135,937
October, 1953—5 weeks	38,858	245,186	195,728	394,357	328,430	266,993	1,469,252	.....	.....	....	299,275
Ten Months—1954	516,516	3,030,901	1,633,128	2,387,169	2,749,166	1,407,085	.....	11,823,965	.....	− 6	1,384,943
Ten Months—1953	528,707	2,877,241	2,259,607	2,884,516	2,717,337	1,598,249	.....	.....	12,865,657	....	1,088,138
% Change '53 to '54 (Av. Wk.)	+19	+8	−26	−15	+4	−10	.....	.....	.....	....	+30

How New Tax Law Affects Construction Men

Major revisions of tax code make far-reaching changes in how civil engineers and contractors can figure taxes

Joseph J. Schwartz
Attorney & C.P.A.
Schwartz & Meyers
New York City

The new tax law passed last summer is the most extensive revision of the code in 15 years. We've already gone into the possible effect of the new fast-depreciation rules on purchasing and renting equipment (ENR July 29, p. 91). But there are some other important aspects to be considered.

• Depreciation

• Depreciating rebuilt equipment—An unanswered question under the new law is whether fast-depreciation methods can be used on rebuilt property and if so, to what extent. The law says that the new depreciation methods shall apply to property constructed, reconstructed, or erected after December 31, 1953. It does not say to what degree this property must be rebuilt in order to be covered.

So it's a question whether a reconditioned machine is "reconstructed", or whether a specific percentage of its parts must be replaced before it will be considered as reconstructed. It will be interesting to see how the Treasury interprets this provision. Since you cannot get the benefit of the new depreciation methods by buying used equipment, it would be odd if you were able to do so by reconditioning your own equipment.

• New construction—Another problem arises in connection with construction begun in 1953 and finished in 1954. The law says that the new depreciation methods can be used only on the part constructed in 1954.

This, of course, discriminates against the taxpayer who puts up his own building or other construction. If he started construction last year and finished this year, he must separate and allocate the costs. But a taxpayer who bought the same property this year gets the full benefit of the new provisions.

Some taxpayers who have done their own construction may find tax relief by transferring the property when completed to related companies, and having those companies take the benefit of the new depreciation rules.

• Law stimulates construction—In general, the new depreciation methods should stimulate building construction. Real estate investors ordinarily buy income-producing properties with relatively small cash investments and large mortgage commitments. The amount they can deduct for depreciation from taxable income always has an important effect on their decision. But they cannot apply the fast-depreciation methods to older property, since these methods can only be applied to assets that have never been depreciated before.

Before leaving depreciation, we should note that the new law gives the taxpayer an opportunity to make a written agreement with the Treasury on useful life and depreciation rates of his property. It cannot be re-opened unless there are facts and circumstances which were not considered at the time of the agreement.

• Partnerships

The new law makes important changes in taxation of partnerships. In many cases, it may provide impetus for a change-over from the corporate to the partnership form. Here are some of the major changes:

• Partnership may be taxed as corporation—For the first time, the new law allows certain sole proprietorships and partnerships to elect to be taxed as corporations while retaining their unincorporated legal form. The choice must be made by the owner or by all the partners within 60 days after the end of the organization's taxable year. Once made, the choice is irrevocable unless there should be a change in ownership of as much as 20%. Then a new decision must be made.

Requirements:

(1) One where capital is a material income-producing factor (such as a business requiring a substantial investment in plant, equipment or inventory). Or else 50% or more of earnings must come from selling in its own name or from brokerage commissions on sales of real estate, securities, or commodities. *This rules out firms engaged in professional services like engineering.*

(2) The enterprise is owned by not more than 50 individuals.

(3) No owner or partner having more than a 10% interest in the business has more than a 10% interest in another proprietorship or partnership being taxed as a corporation.

(4) No owner or partner is a nonresident alien.

• Partnership taxable years—Under the new law, as under the old, a partner and his partnership may have different taxable years. The partner reports his share of the income and losses of the partnership for any taxable year of the partnership ending with or within his taxable year. The new law, however, sets up a new rule on prospective changes in accounting periods.

Under this rule, a partnership may not change to or adopt a taxable year other than that of its principal partners, and a partner may not change to a taxable year other than that of a partnership in which he is a principal partner, unless there is a business reason for the change. A principal partner is defined as one having an interest of 5% or more.

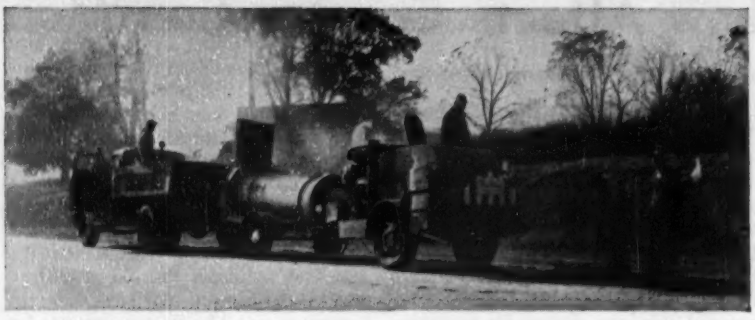
This closes a loophole in the old law by which a partner could postpone his personal tax liability as much as 11 months by having the partnership adopt a taxable year which did not coincide with his own taxable year. The new law does not disturb this arrangement where it has existed prior to April 1, 1954.

• Transactions between partner and partnership—Under the new law, a partner who does business with the partnership, other than in his capacity as a partner, is to be treated as if he were an outsider.

Any fixed amounts paid to partners for services or the use of capital are treated by the new law in the same way as if they were paid to an outsider. This means they will be taxed as salary or interest income to the partners and allowed as business deductions to the partnership. Under both the old law and the new law, a gain or loss on the sale of a partnership interest is treated as a capital gain or loss. The new law makes clear that any amounts received by a selling partner which is attributable to his share of unrealized receivables or appreciated inventory is ordinary income or loss. This rule also applies generally to payments made by a partnership to a retiring partner.

(*Continued on page 88*)

New Portable Dryer



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New Spreader Attachment

This spreader attachment, which is optional equipment with the Moto-Patcher, is 8 ft. wide and is fully adjustable to specified grade and crown, insuring a uniformly smooth surface even on irregular pavement.

Bulletin MPD-53 gives complete information on the Moto-Patcher, Dryer and Spreader. See your local H & B distributor or write direct.

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● Some other major changes

• **Business travel expenses**—On your tax return, you can now deduct from your gross income all your unreimbursed business travel expenses, whether away from home or not. This includes: all car costs when used in connection with the job (including repairs and depreciation) as well as taxi and train fares. Commuting to and from work is still not deductible.

• **Income earned abroad**—A previous article (ENR—Oct.8'53,p360) described in detail the tax situation of engineers and construction men who earn income abroad. The new law is about the same, with one exception: If you were engaged in construction work overseas as an individual in business or as a partnership, and you qualified under the foreign residence provisions, you could under the old law exclude 20% of your net profits from taxable income. Under the new law, you can exclude 30%.

• **Estimated expenses**—Under the old law, the Treasury did not allow costs and expenses to be deducted in a given year even though they were related to the income for that year, if their amount had to be estimated. The taxpayer had to wait until the year in which the expenses were paid to deduct them.

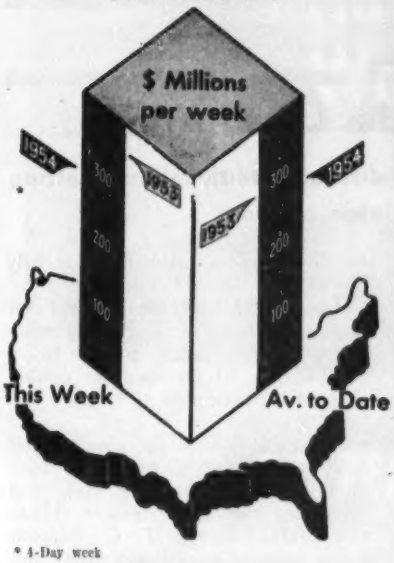
But the new law allows you—if you pay taxes on an accrual basis—to deduct reserves for certain estimated expenses These include: construction guarantees, freight allowances, vacation pay, liability for renegotiation, liabilities for self-insured injury and damage claims and any other expense attributable to the year's income which the Treasury is satisfied can be estimated with reasonable accuracy. That rules out costs and expenses of a contingent or contested nature. Taxpayers who are on a cash basis do not have this option.

This right to deduct reserves may be elected without Treasury consent in your return for the calendar year 1954 and fiscal years starting in 1954. In later years, you will need the Treasury's consent.

• **Pay-as-you-go for corporations**—The new law establishes a pay-as-you-go system under which many corporations, like individuals, will file a declaration of estimated tax, pay a part of it in advance during the taxable year, then file a final return and pay the rest after the close of the year. This applies only to corporations with a tax liability of $100,000 or over.

Activity This Week

As reported to ENR
(In millions of dollars)



* 4-Day week

Amount of contracts let

	This Week*	Cumulative 44 wks 1954	1953	% chge
Federal	$20.0	$1,059.4	$1,266.3	−16
State and municipal	101.4	4,193.9	4,268.4	−2
Total public	121.4	5,253.3	5,534.7	−5
Total private	165.8	6,857.8	7,330.9	−6
U. S. total	$287.2	$12,111.1	$12,865.6	−6

Contracts by type of work

Waterworks	$2.7	$202.9	$200.8	+1
Sewerage	8.9	326.5	370.6	−12
Bridges	4.8	421.1	596.6	−29
Highways	40.9	1,621.2	1,532.0	+6
Earthwork, waterways	2.3	274.5	314.3	−13
Buildings:				
Public, excl. hsg.	24.4	1,474.1	1,460.1	+1
Housg., public	2.4	200.8	340.7	−41
Housg., private	103.2	3,594.7	3,050.3	+18
Commercial	37.1	1,159.7	1,005.9	+15
Industrial	19.6	1,592.5	2,460.8	−35
Unclassified	40.9	1,243.1	1,533.5	−19
Total	$287.2	$12,111.1	$12,865.6	−6

NOTE: Minimum size projects included are: Waterworks and waterways, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

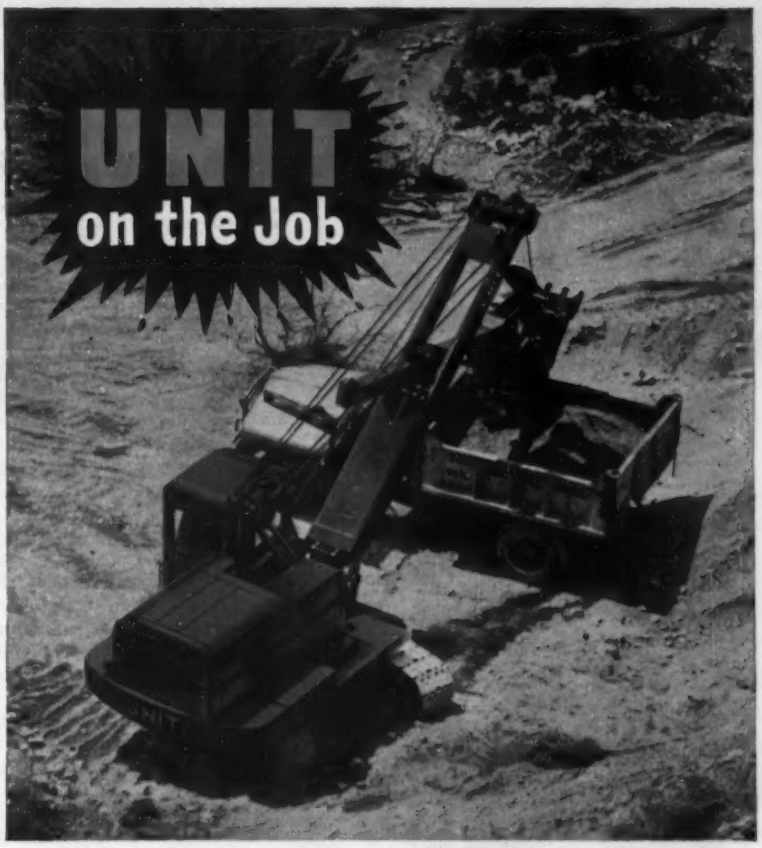
(millions of dollars)

	Week of Oct. 28 1954	Cumulative 43 Wks 1954	% chge '53-'54
Corporate securities	$33.2	$2,444.1	−34
State and municipal:			
All except housing	88.5	4,450.2	+24
Housing	...	91.0	−62
Federal loans	0.6	101.4	+5
Federal aid	...	673.0	−13
Total non-federal	$122.3	$7,759.6	−7
Federal appropriations:			
In U. S.	...	$2,073.3	+32
Outside U. S.	...	33.2	+17
Total new capital	$122.3	$9,866.1	−1

ENR cost and volume indexes, 1954

		Base years = 100 1913	1926	1949
Construction cost	10/28†	643.02	309.10	134.80
	9/30†	641.89	308.56	134.56
Building cost	10/28†	456.34	246.68	129.72
	9/30†	455.54	246.25	129.49
Volume	Oct.	423	172	122
	Sept.	503	204	145

† Official ENR monthly indexes for Nov. & Oct.



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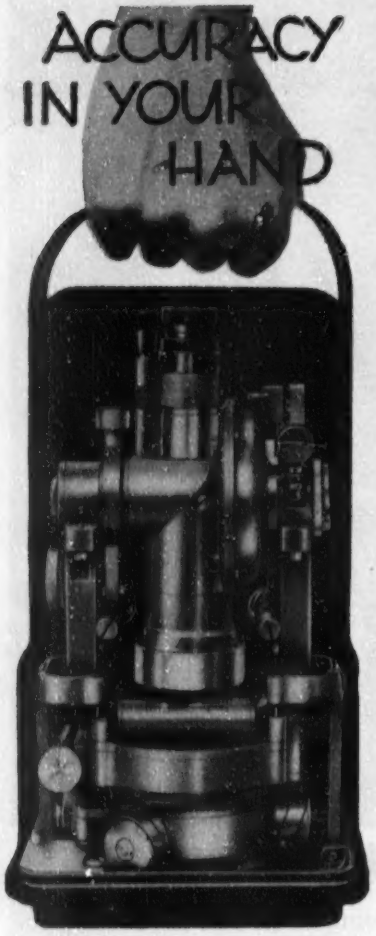

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LABOR

Area-Bargaining Under Union Attack

Controversy threatens validity of traditional rate-setting procedure for stabilizing labor relations

A question that may have a far-reaching effect on the basic procedures of labor-management bargaining in the entire U. S. construction industry was up for decision this week before a New York State Supreme Court justice.

The basic issue was immersed in a welter of side issues that included the fact that three separate rates of pay now exist for carpenters in the area. But, the key point was this:

Is the time-honored custom of area bargaining by contractors' associations with district labor councils valid? Are agreements reached in such bargaining worth the paper they're written on?

The Northern New York Building Trades Employers Assn., Inc—which has 29 corporate members—went to the courts with the contention that its area agreements are binding. The Adirondack and Vicinity District Council of Carpenters—chartered by the national union and consisting of nine locals is defendant in the action. It sought to prove the agreements are not binding, that local-union members of the council are at liberty to sell their services to one group of contractors at one price, to another at a better price—if they can.

• **Genesis**—The dispute grew out of work on the huge Plattsburg, N. Y. base—now undergoing an $18-million conversion from an old-time Army and National Guard base into an Air Force installation.

Ever since work started at Plattsburg (ENR Jan. 28, p. 26), there have been labor troubles—some over wages, some over jurisdiction—as really big construction moved into an area not used to work of such magnitude.

While work at Plattsburg was in progress, the BTEA carpenters' contract was negotiated in a traditional manner for an area stretching northward to the Canadian border. Employers had negotiated similar contracts for more than seven years.

General contractors on the airbase job — Winkelman-Tompkins-Jones (Dwight W. Winkelman Co., C. H. Tompkins Co., and J. A. Jones Construction Co.)—performed most of their work (heavy construction) under terms of an agreement negotiated by a chapter of the Associated General Contractors. Rates for carpenters under the AGC schedule were slightly less than in the BTEA agreement.

The BTEA agreement called for carpenters' rates of $2.75 for building construction and $2.97½ for heavy construction. It provided for double time for overtime after 40 hours.

• **Try again**—One of the nine council locals then went to two other contractors on the Plattsburg work, and negotiated a second agreement. These two contractors—the T. C. Bateson Construction Co. of Dallas, Tex., and Fred Raff Co. of Hartford, Conn.—are not members of the BTEA organization. Bateson holds an $8.7-million contract for buildings and utilities; Raff a $1.2-million contract for refueling facilities.

Both agreed to a second rate, after negotiations conducted by Armand Belair, and others, representing Local 1042, one of the members of the district council.

This agreement called for a building construction rate of $2.82½ and a heavy construction rate of $3.07½, but for only time-and-a-half for overtime, after a 48-hr week.

• **Which contract?**—The employer group took the position that existence of two contracts would be disastrous to the stability of the industry in the area; and that the carpenters had no right to negotiate a separate contract in the same area.

BTEA immediately protested the action and labeled execution of the "Belair" agreement a violation of its contract with the council. It then requested arbitration under the arbitration clause of its contract.

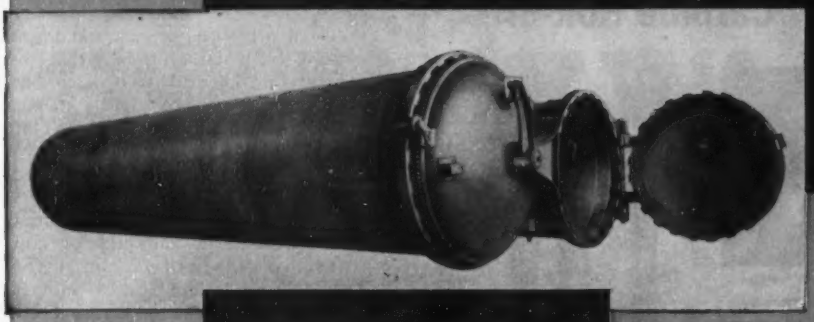
Following a preliminary meeting of the parties on July 14, an arbitration board was appointed. A meeting of the board was scheduled for Aug. 11 at the office of the New York State Mediation Board in Syracuse.

At the last minute, the union served notice it would not attend the arbitration hearing nor arbitrate the controversy, and efforts to work out the controversy under the existing contract collapsed.

In an attempt to compel arbitration, the BTEA filed a petition in Jefferson County Supreme Court in

(Continued on page 92)

Have You Overlooked This Way To Save Money On PRESSURE VESSELS?



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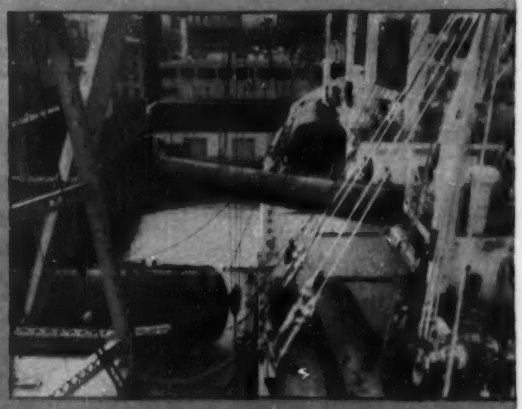

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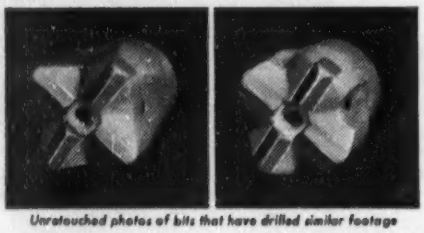

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LABOR

Syracuse. Only the association and the council were made parties.

The association has asked Justice McClusky, who heard arguments on the petition, for more than just an order to arbitrate. It has asked specifically for a determination that the council "is the duly recognized bargaining agent for the locals it purported to and does represent." Thus it hopes to firmly re-establish the validity and the sanctity of area agreements in general.

Looming further in the background is the tremendous amount of construction which lies ahead on the St. Lawrence Power and Seaway projects. In most minds, the outcome of the Plattsburg dispute will significantly affect labor relations in that area.

• **Deep concern**—The employers are joined in their grave view of the outcome by the state-wide Building Industry Employers' Assn., whose representatives have been carefully watching the matter.

According to Donald F. Davies, executive secretary of the BTEA group, the question throws under a cloud the whole traditional basis of area-wide bargaining in the construction industry.

"And if this attack on bargaining procedures is successful," he adds, "then the whole construction picture gets chaotic. No one could bid a job in any area—he wouldn't know the labor rates on which to base his bid."

Related to this is the difficulty of administering the provisions of the Davis-Bacon Act in such a situation where multiple rates prevail.

There's still another objective involved—an internal one of the contractors, and long dear to their hearts. That would be to establish firmly the principle that any "outside" contractor coming into a new area should contact and work with the local contractor groups so as not to upset local conditions—and not to leave local men a legacy of higher wages, after the "outsider" completes his job.

• **Other questions**—Attached to the central issue involved are two important and perhaps far-reaching side issues. The first relates to the Taft-Hartley Act and forms one of the defenses of the council. If it attempted to force either Bateson or Raff to accept the terms of the area agreement, it argued, then it would be guilty of an unfair labor practice under Sec. 8 (b) (3) of the Taft-Hartley Act—which requires a union to bargain collectively with an employer if it is the representative of the employer's employes.

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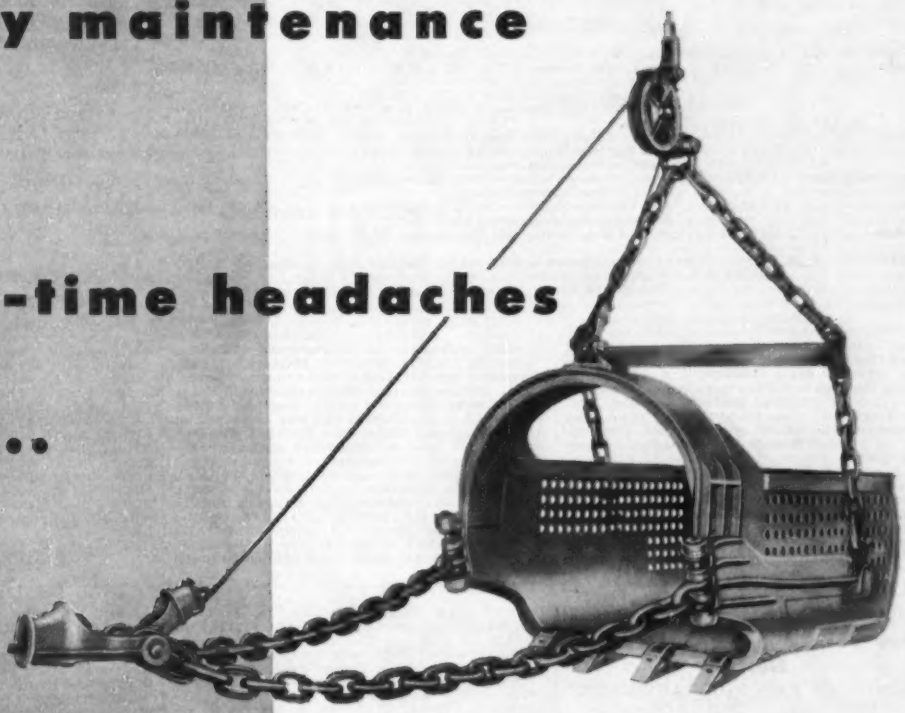

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HENDRIX MANUFACTURING CO., Inc.

MANSFIELD, LOUISIANA

OFFICIAL PROPOSALS

Bids: November 18, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 18th day of November 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 4, E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Monroe	FAC 54-15	Rochester City: Inner Loop (Exchange St.-Main St. West) Proj. U-231(6), U-1089(5)	0.40	Asph. Conc. Ty. 2A	$25,000 Plans $15	$486,000
DISTRICT No. 6, J. H. Thomas, District Engineer, 30 West Main Street, Hornell, N. Y.						
Chemung	WC 54-105	East Corning-Horseheads Pt. 2, F. A. S. H. 53-6 Horseheads-Corning, S. H. 358 Horseheads Village, S. H. 5162, F. A. S. H. 53-5 Elmira-No. Elmira Extension, F. A. S. H. 54-16	2.65	18,630 L. F. Fencing	$850 Plans $10	16,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Ulster	CT 54-2	New York State Thruway—Catskill Section—Subd. 2 Ruby Gas Station-Restaurant Site (Type A)	....	Grading, Paving and Miscellaneous Work	$12,000 Plans $10	229,000
Orange and Rockland	CT 54-5	New York State Thruway—Catskill Section—Subd. 6 & 7 (Suffern-Harriman-Newburgh)	....	Furnish and Install 119,000 L. F. Fencing	$30,000 Plans $10	554,000
Ulster	CT 54-3	New York State Thruway—Catskill Section—Subd. 1 Malden Gas Station-Restaurant Site (Type A)	....	Grading, Paving and Miscellaneous Work	$12,000 Plans $10	212,000
Westchester	SMRP 54-1	Saw Mill River Parkway (Mt. Kisco-Katonah, Pt. 1)	3.05	Roadside Development	$6,000 Plans $10	107,000
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Little East Neck Road, Babylon, L. I., N. Y.						
Bronx	FAMDE 54-6	Major Deegan Expressway (Cont. No. 9) Proj. UI-1082(21)	7.20 Exp. (1.28 Acc.)	9" Colored Cem. Conc. Pavement 2 @ 36' Wide = 3.43 Mi. Cem. Conc. Pavt. (Acc. Rds.) = 1.28 Mi. Miscell. Work = 2.77 Mi.	$154,000 Plans $100	2,620,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specifications, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: December 7, 1954

New York Approach—Section No. 1

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUBE TUNNEL
THIRD TUBE
CONTRACT LT-160.019

Sealed proposals for the construction of an approach roadway system in Manhattan for the Lincoln Tunnel, including the Third Tube, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, December 7, 1954, at which time said proposals will be opened and read in Room 1103.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $100.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $100.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a recipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, November 4, 1954

Bids: November 23, 1954

Seventh Floor Alterations

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
CONTRACT EXD-130.013

Sealed proposals for performing alterations to a portion of the seventh floor of the Port Authority Building, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, November 23, 1954, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, November 4, 1954

Bids: November 23, 1954

New Jersey Turnpike Authority

CONTRACT NO. N-16

Proposals are invited for Contract No. N-16 which involves the fabrication and erection of the superstructure steelwork for five (5) bridge structures in Jersey City, Hudson County, New Jersey, all in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike.

The principal items of work include:
Structural Steel ..... 8,100,000 Lbs.
Furnishing Metal Railing ... 3,430 Lin. Ft.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 o'clock Eastern Standard Time on the morning of November 23, 1954, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after November 1, 1954, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman
October 28, 1954

Engineering News-Record

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Its distribution among the contractors of any one state is in proportion to the number of contractors situated in that state. The Official Proposal Columns of *Engineering News-Record* offer precisely the same efficient service to municipalities, counties, state and federal departments in every section of the United States.

OFFICIAL PROPOSALS

Bids: November 23, 1954

Fairfax County, Virginia Integrated Sewerage System

Sealed bids will be received by the Board of County Supervisors of Fairfax County, Virginia, at the Office of the Sanitary Engineer, County of Fairfax, Fairfax, Virginia, until Tuesday, November 23, 1954, at 2:00 o'clock, P.M. Eastern Standard Time, for the construction of:

CONTRACT NO. 30: Approximately 50,000 lineal feet of 8 to 15 inch sanitary sewers and appurtenances.

CONTRACT NO. 33: Approximately 15,300 lineal feet of 8 inch sanitary sewers and appurtenances.

CONTRACT NO. 34: Approximately 18,400 lineal feet of 8 and 10 inch sanitary sewers and appurtenances.

Promptly thereafter they will be publicly opened and read in the Board of Supervisors Room, County Office Building, Fairfax, Virginia.

Plans, specifications, and contract documents may be examined and copies thereof may be obtained at the Office of the Sanitary Engineer, upon payment of Ten Dollars ($10.00) per Contract, which amount shall not be returnable.

All bids must be on separate form furnished by the County.

Contractors, whether resident or nonresident in Virginia, will be required to show evidence of a Certificate of Registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

Each bid must be accompanied by cash, or by the certified check of the bidder, made payable to the Director of Finance, County of Fairfax, Virginia, or by an acceptable bidder's bond in an amount not less than Five Percentum (5%) of the amount of the total bid. The successful bidder will be required to furnish a performance and maintenance bond in a penal sum equal to the full contract price.

No bid may be withdrawn for a period of thirty (30) days after the actual opening thereof and the right is reserved to waive any informality therein and to reject any or all bids.

COUNTY OF FAIRFAX, VIRGINIA
By: Harry L. Hale, Sanitary Engineer
Dated: November 4, 1954

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4281) will be received at Kennewick, Washington, until December 1, 1954, for furnishing labor and materials for earthwork, canal lining, and structures, Main Canal Station 766/50 to Station 1300/00, Kennewick Division, Yakima Project, Washington. Location near Kennewick, Washington. Principal items are: 623,000 cu. yds. excavation; 1,860 cu. yds. concrete in canal lining; 1,440 cu. yds. concrete in structures; 2,000 lin. ft. concrete culvert pipe; 5,000 pounds metalwork; and other work. Completion time 500 days. For particulars, address Bureau of Reclamation, Kennewick, Washington; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

GOV. OF DIST. OF COL., DEPT. OF HIGHWAYS, Oct. 22, 1954. SEALED PROPOSALS will be recd. in Rm. 404, 499 Pa. Ave., N.W., Wash. 1, D. C., until 2 PM. EST Nov. 16, 1954, and then publicly opened and read for constr. of Interchange Structures on Kenilworth and Deane Avenues, N.E., Fed. Aid Proj. No. U-45(3). Approx. quant.: 11,200 cu. yds. Struct. Excavation; 55,000 cu. yds. Borrow Excavation; 7,300 cu. yds. Concrete; 916,000 lbs. reinforc. Steel; 771,000 lbs. Struct. Steel; 66,400 lbs. Silicon Steel; 29,300 sq. ft. Stone Facing; and constr. of 1,075 lin. ft. of railroad track. Proposal forms, plans and specns. obtainable, upon deposit of a Certified Check for $30.00 per set, payable to Collector of Taxes, D. C., from Supervisor, Contr. & Bond Sec., Procurement Office, D. C., Rm. 406, 499 Pa. Ave., N.W. (Tel. NA 8-6000, Ext. 2378).

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

OFFICIAL PROPOSALS

COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for constructing a section of Northeast Expressway in City of CHELSEA, Contract #2 consisting of an elevated viaduct with access ramps and connections will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P.M. of Tuesday, November 23, 1954 and at that place and time publicly opened and read. Proposal guaranty: $60,000 Charge for plans and proposal forms: $30.00, amount returnable only to bidders. Complete information at said office; plans on display at District offices. Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work. By: JOHN A. VOLPE, Commissioner of Public Works. October 23, 1954.

Bids: November 15, 1954

Contract No. 264-S

WASHINGTON SUBURBAN SANITARY COMMISSION

Sealed proposals for construction, complete, of the Anacostia River Sewage Pumping Station, Prince George's County, Maryland and all appurtenances, will be received at the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, until Monday, November 15, 1954 at 2:00 P.M., Eastern Standard Time, at which place and time they will be publicly opened and read.

Plans and specifications may be obtained from the office of the Chief Engineer of the Commission, Hyattsville, Maryland, upon deposit of $100.00, which deposit will be returned to bidders or to those returning plans and specifications in good condition.

Raymond W. Bellamy
L. S. Ray
J. Norman Ager
Commissioners

Attest:
James B. Parkhill
Secretary-Treasurer

Bids: November 22, 1954

Construction of Interceptor Sewer

Separate sealed bids, addressed to the Board of Sanitary Commissioners of the City of Gary, Lake County, Indiana, for the construction of the Rhode Island Relief Interceptor Sewer and the Broadway Interceptor Sewer, as shown on the detailed plans and specifications for said work now on file in the office of the City Engineer, City Hall, Gary, Indiana, will be received at the office of the City Engineer, City Hall, Gary, Indiana at ten o'clock A. M. central standard time on November 22, 1954, and immediately following that time will be publicly opened and read aloud in Room 300, City Hall, Gary, Indiana.

The information for bidders, form a proposal, form of contract plans, specifications, forms of performance bond and non-collusion affidavit may be examined without charge at the office of the City Engineer, City Hall, 4th and Broadway, Gary, Indiana.

Copies of the contract drawings, specifications, contract and other forms as set forth above may be obtained at the office of the City Engineer, City Hall, Gary, Indiana. A deposit of Twenty Five ($25.00) Dollars will be required for each set of plans and specifications. Provided the documents are returned in good condition within thirty (30) days after the date of receiving proposals, Fifteen ($15.00) Dollars of the deposit will be refunded.

Each proposal shall contain the full name and address of the party or parties making the same, and all persons interested therein, and must be accompanied by a certified check on a solvent bank in the sum of 10% of total bid price made payable to the Board of Sanitary Commissioners, and to be by it held as a guaranty that in the event the bid is accepted and a contract awarded to the bidder, the contract will be duly executed and its performance properly secured, and in default thereof, said check and the amount represented thereby will be forfeited to the City as liquidated damages.

The successful bidder will be required to furnish a performance bond, satisfactory to the Board of Sanitary Commissioners, in a sum not less than one hundred per centum (100%) of the total price bid for the completed work, said bond to be that of an approved surety company or approved surety companies authorized to transact business within the State of Indiana.

Each proposal must be made upon the blanks furnished with the contract drawings and specifications and delivered at the office of the City Engineer, City Hall, Gary, Indiana, previous to ten o'clock A. M. on the day specified.

No bidder may withdraw his bid for a maximum period of thirty (30) days after the actual date of the opening thereof.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract.

The Board of Sanitary Commissioners reserves the right to waive any informalities or irregularities in the bids received, and to reject any or all bids.

CITY OF GARY, INDIANA
BY ITS BOARD OF SANITARY COMMISSION
HAROLD ZWEIG, PRESIDENT

Bids: November 23, 1954

Sewage Pumping Station

CITY OF ELIZABETH, NEW JERSEY
NOTICE TO BIDDERS

Sealed proposals for the construction of a Sewage Pumping station in connection with Alterations and Additions to the Sewerage System will be received by the Board of Public Works of the City of Elizabeth, New Jersey, at a meeting to be held in the Council Chamber at the City Hall at 2:00 P.M., E.S.T., on Tuesday, November 23, 1954, and then publicly opened and read. No proposal will be accepted after said hour. Proposals will be received on the following:

Contract 3A—Sewage Pumping Station—General Construction.
Contract 3B—Sewage Pumping Station—Structural Steel Work.
Contract 3C—Sewage Pumping Station—Heating and Ventilating Work.
Contract 3D—Sewage Pumping Station—Plumbing Work.
Contract 3E—Sewage Pumping Station—Electrical Work.

Information for Bidders, Proposal forms, specimen Contract, Plans, Specifications and other pertinent Contract Documents for any or all of the foregoing contracts may be examined at the office of Henry Kreh, Jr., Consulting Engineer, 51 First Street, Elizabeth, N. J., Alexander Potter Associates, Associate Engineers, 50 Church St., New York, and at the office of the City Engineer, City Hall, Elizabeth, N. J., between the hours of 10 A.M. and 4P.M. daily except Saturdays, Sundays and holidays and there obtained upon making a deposit of Fifty ($50.00) dollars, which will be refunded to bidders within thirty (30) days after the proposals are opened and upon return of the data undamaged. Half of this deposit will be refunded to nonbidders.

Extra copies of specifications may be obtained at the cost of Ten ($10.00) dollars each and extra sheets may be obtained at the cost of One ($1.00) dollar each which sums will not be refunded.

The work involves approximately 4800 cu. yds. of excavation; 1450 cu. yds. of concrete; 17 tons of structural steel; five pumping units totaling 51 m.g.d. capacity.

Prospective bidders will be required to fill in answers in Questionnaire of Financial Statement which is authorized by State Law and which must be approved by the Board of Public Works before bidders are eligible for bidding. Questionnaire forms may be obtained at the office of the City Engineer.

No proposal shall be considered unless accompanied by a Bid Bond of a corporation acceptable to the City, or a cashier's check or a certified check upon some good and acceptable bank, in the penal sum of 10% of the total amount of each bid as a guarantee that if the contract upon which the bidder has bid shall be awarded to said bidder, he will enter into a contract for the work and do so within the time stipulated in the Notice of Award for said work and failing to do so the bidder and surety shall forfeit to the City of Elizabeth, the amount of said Bid Bond or check. The Bid Bond shall be executed by the bidder and surety company on form furnished by the City.

A bidder to whom a contract is awarded shall furnish a Performance Bond on a surety company duly licensed in the State of New Jersey, in the sum of 100 per cent of the amount of the contract, conditioned upon the faithful performance of the terms of the contract.

The successful bidder will be required to comply with all State Laws governing the execution of Municipal contracts in the State of New Jersey.

The Board of Public Works reserves the right to reject any and all bids as it may deem best for the interests of the City of Elizabeth, and to waive any informality in the bid.

BY DIRECTION OF THE
BOARD OF PUBLIC WORKS.
GEORGE F. CUMMINGS
Clerk, Board of Public Works.
Dated Oct. 28-Nov. 4, 1954.

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Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. 36 for November 18th issue closing November 8th

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Graduate Chemical, Mechanical, and Electrical Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of project and process engineering. Write giving full particulars regarding personal history and work experience. Please include telephone number.

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ARABIAN AMERICAN OIL COMPANY
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Qualified Superintendent wanted with proven executive ability for large Mid-Eastern aggregate producer. Write giving full experience, references, age and salary.

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Experienced
Structural Steel & Foundation Design
Bridges, Conveyors, Highways
Draftsmen with valued experience
Mail complete resume with salary requirements
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STRUCTURAL ENGINEER
Familiar with steel and concrete design.
Apply to:
C. A. REDDEN, *Chief Engineer*
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BRIDGE DESIGNERS
Excellent opportunity for Engineers qualified to design modern expressways and bridges. Also openings for recent Civil Engineering Graduates. Location in Harrisburg, Pennsylvania, with excellent living conditions. Include experience and salary requirements in first letter.

Gannett Fleming Corddry & Carpenter, Inc.
Box 306 Harrisburg, Pennsylvania

SALARIED POSITIONS $5,000 — $35,000
We offer the original personal employment service (established 44 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.
R. W. BIXBY, Inc.
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CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

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IRRIGATION ENGINEER with agricultural hydraulic and construction experience to design and supervise installation small irrigation systems South and Southeast. Permanent position with rapidly expanding firm. Excellent opportunity for ambitious young man. Submit resume, age, education, experience, list of references, salary requirements, availability. Box P-4226, Engineering News-Record.

BRIDGE—HIGHWAY Engineers—Designers—Draftsmen. For work on bridges, expressways and turnpikes. Location Midwest. Permanent positions with periodic promotions depending on experience and ability. Paid vacations, sick leave, hospitalization and life insurance. Include education, experience, reference and salary expected in application letter. P-4280, Engineering News-Record.

EXPERIENCED STRUCTURAL Steel Detailer for small shop in Middle West. Submit complete resume to Berger Steel Co., Inc., Lafayette, Indiana.

CHIEF ESTIMATOR — Large general contracting firm located in Baltimore, Maryland. This firm has been operating for 34 years and is considered one of the best in this locality. Applicant to be under 50 years of age, experienced in estimating all types of general building construction. If interested advise age, education, experience and salary desired. Replies confidential. P-4364, Engineering News-Record.

WANTED 3 Foremen for sewer and water main construction, Washington, D. C. Inquire P. O. Box 359, Hyattsville, Md.

EXPERIENCED ESTIMATOR and Chief Engineer, capable of preparing estimates, helping price, purchasing, expediting and job management. Permanent position for top man with Mid-West general contractor specializing in industrial, commercial and public works. Send complete history, including education, past experiences, references, salary expected and photograph if available. P-4417, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT: Large housing project builder operating in Central Indiana requires man familiar with prefab. construction. F.H.A. and V.A. have proven record. Must be willing to relocate. Send photo if available, resume, salary expected and availability. P-4429, Engineering News-Record.

CIVIL ENGINEERS: City of Saginaw has openings for graduate engineers with experience. Salary $4480-6200, depending upon experience and ability. Good working conditions, fringe benefits with retirement. Write Personnel Officer, City Hall, Saginaw, Michigan.

CIVIL ENGINEER — recent graduate preferred — on paving, sewer, bridge, etc. construction — by small well established firm of Engineers and Contractors. Excellent opportunity for bright young engineer. $300.00 per month starting salary — location Northern New Jersey. P-4448, Engineering News-Record.

WANTED CONTACT with capable bridge engineer over 40 for executive meetings. Some traveling. Percentage of profits. Later drawing account when in charge of office. P-4456, Engineering News-Record.

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CIVIL & SANITARY Engineer, BSCE, MSSE, 31, 5 years responsible engineering and administrative experience. Ability to organize, supervise and work with others. Desire responsible position requiring competence, drive and initiative in sales, industry or construction. Will relocate. PW-4308, Engineering News-Record.

CHIEF DRAFTSMAN of Structural Steel Fabricating Co. desires similar position as chief engineer or chief draftsman with a small established fabricator employing not more than 12 structural draftsmen. Have had 20 years experience in structural steel and reinforced concrete. PW-4365, Engineering News-Record.

CIVIL ENGINEER 30 years estimating, design, field supervision heavy construction. PW-4268, Engineering News-Record.

CONSTRUCTION SUPT. 20 years refinery chemical plant and general. Have good following. Also heavy estimating experience. Capable administrator. Will work as project manager, supt. or chief estimator, domestic or foreign. Speak Spanish. Would relocate. PW-4297, Engineering News-Record.

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SUPT OF Gen'l Const. — College grad. 38 yrs old, 16 yrs exp. Have run large and small jobs. Power plants, bridges, industrial & commercial bldgs. Cost conscious. Familiar with concrete steel, brick, formwork. Can organize jobs. Write PW-4423, Engineering News-Record.

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CIVIL ENGINEER-Age 38. Registered P.E. — Surveyor 3 states. 15 years experience municipal, construction, steel fabrication, consulting. Desire position with consultant or contractor. Available immediately. Location unimportant. PW-4415, Engineering News-Record.

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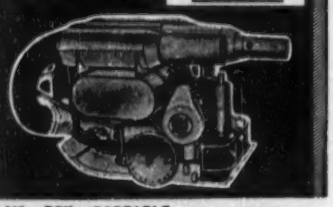

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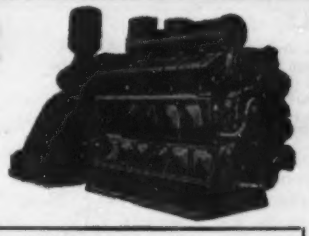

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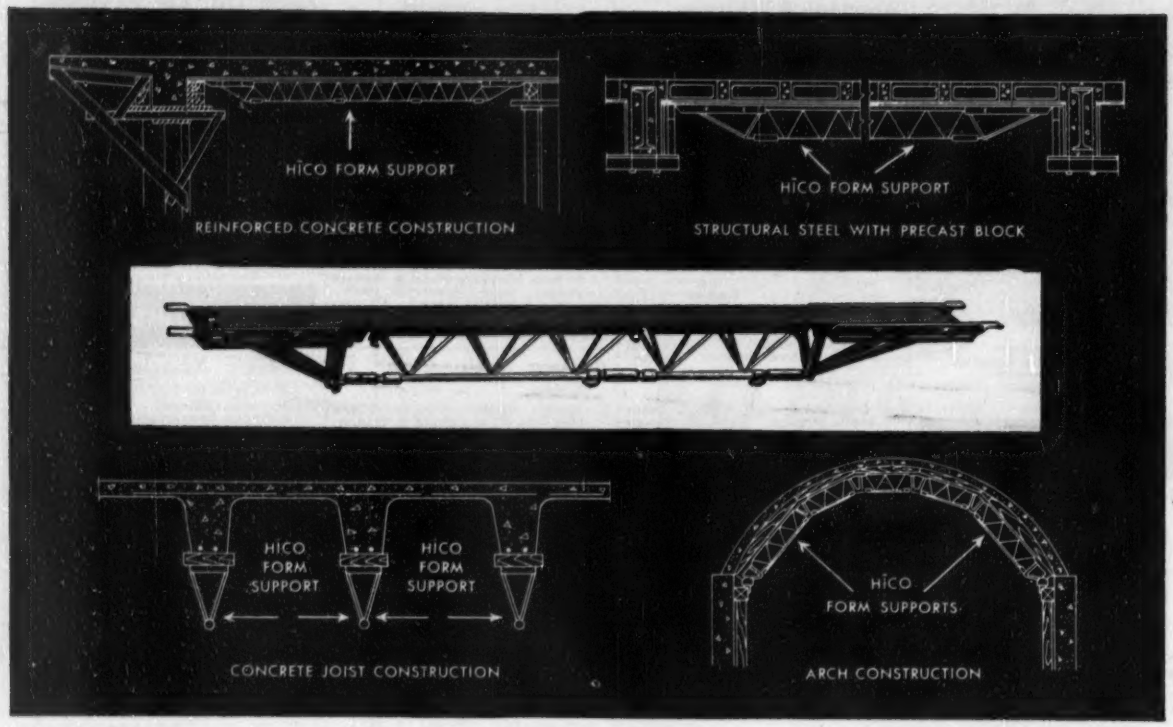

new horizontal form supports cut shoring costs up to 40%

TIME SAVING
Can be erected and stripped in ⅓ the time needed for ordinary form supports. No special tools needed. HICO steel supports are delivered completely assembled and tagged to show exact locations according to plans. Because no vertical center supports are needed, work can continue on floor below, cutting over-all construction time.

LOW COST
Savings in construction time naturally cut construction costs. In addition, reuse factor permits amortization of initial costs over many jobs.

LIGHTNESS
Weigh 8⅓ lbs. per foot, any section easily carried.

*Trade Mark.

Adaptability is one of the main reasons why HICO steel form supports save money. Each support is composed of sections of varying lengths. Special end pieces assure adaptability to all types of vertical supports. Using combinations of these components, complete horizontal supports in a variety of lengths up to 27 feet may be assembled in minutes. As a result, the same basic HICO sections can be used again and again on a wide range of construction projects. Other advantages are listed below.

DEFLECTION COMPENSATION
Tightening of special turnbuckle device at bottom of span controls camber of span which compensates for deflection due to slab weight; assures even, level surfaces.

EFFICIENCY
No center supports needed. Engineering design assures tremendous strength and exceptionally high resistance to buckling.

STRENGTH
Carries forms and concrete on clear spans up to 27 feet.

DURABILITY
Each HICO section may be reused 100 times or more.

HICO FORM SUPPORTS may be purchased outright or leased with an option to buy. If leased, rental may be applied against purchase price. HICO engineers will be happy to consult with you concerning your particular requirements. In addition they will furnish detailed layout plans showing number and type of HICO form supports required and, if desired, will work with contractor at job site to familiarize him with all phases of the product.

U. S. Patent No. 2,687,193. Other Patents Pending.

For complete information, technical data and prices, write Dept. E-4, Webrib Steel Corp.

HĪCO® ADJUSTABLE HORIZONTAL FORM SUPPORTS

A PRODUCT OF **WEBRIB STEEL CORPORATION**

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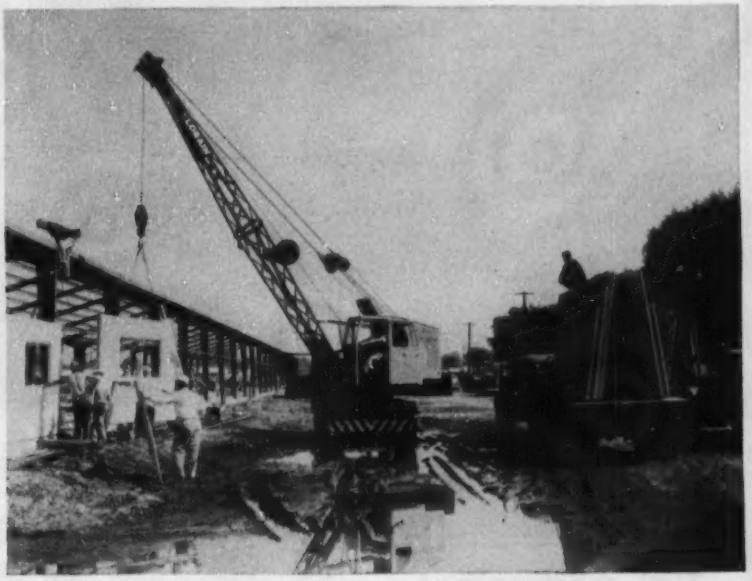
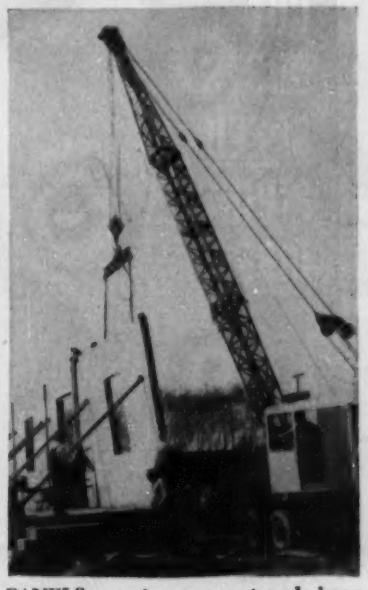


MODULAR PANELS have steel window frames cast in. Panels clamp to wall girt.



PANELS are set over precast grade beam.

Packaged buildings quickly erected

Pre-planned, pre-designed and precast—that's the sum and substance of a new line of commercial and industrial buildings recently placed on the market. These buildings are designed to be permanent, yet erected with a minimum of time and expense—average cost is about $2.50 psf.

The rigid steel framework is of a type that provides an interior free from obstructing columns and trusses; the floor area is clear from wall to wall and end to end. Sheathing this framework are special precast concrete wall panels with outer surfaces broomed to resemble limestone. They are made available with or without cast-in insulation.

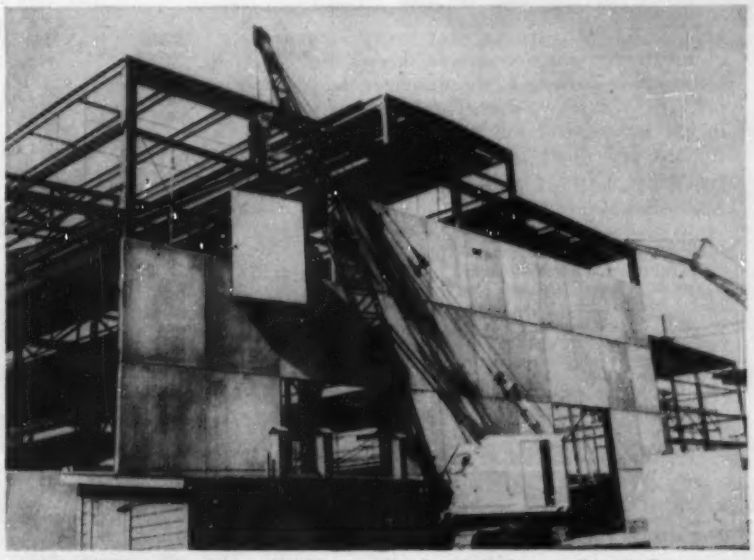
A 5-in. thick panel with a cast-in 1½-in. core of glass fiber has a U value 0.14, or more than 12 in. of solid masonry. In combination with roof insulation installed over the purlins, the insulated panels are said to provide a high comfort level through all seasons in temperate climates.

Standardized components are used throughout the structures for reasons of economy, but they also permit inexpensive expansion of the buildings as necessary. Additional savings in construction are reported through the use of precast grade beams. These beams are tongued to receive the lower edges of the wall panels and form a moisture-proof joint. The precast beams eliminate forms and pouring of concrete at the job site except for piers and footings.

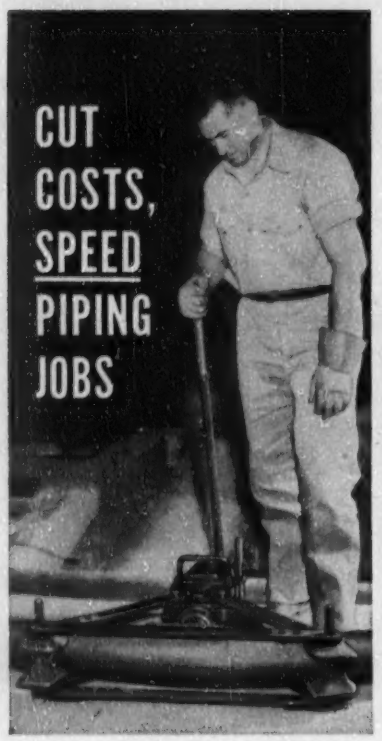
When the building is assembled, upper and lower precast panels are clamped directly to wall girts and secured by bolts cast into the panels at the time of manufacture. Tongue-and-groove joints at the panel edges plus a rubber insert seal and calking provide weatherproofing. A formed eave strut, trapezoidal in section, serves as a top wall girt and upper wall panels are bolted directly to it by means of clamps.

The precast wall sections are modular in dimension to permit variations in door and window placement, and steel door and window frames are cast into the panels at the time of manufacture.

The buildings are available in a variety of sizes and designs under the trade name Panel-Bilt. The Marietta Concrete Corp., Marietta, Ohio. (*New Products continued on page 106*)



PANEL-BILT construction principles can also be applied to multi-storied structures.



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Built for the tough jobs, the GREENLEE Bender saves hours, reduces costs on your pipe and conduit work. With a GREENLEE *one man* quickly makes bends in pipe up to 5", rigid and thin-wall conduit *right on the job*, exactly where and when needed. Many owners report time and labor savings of 50% or more . . . and the cost of many manufactured bends and fittings is entirely eliminated. Compact, portable, versatile to reduce your costs, eliminate construction delays, keep jobs rapidly moving along on schedule. Available in two sizes. Thousands in use by construction crews, electricians and plant maintenance departments. Often pays for itself on the very first job!

FREE BENDER BOOKLET with complete data and illustrations on GREENLEE line of hand and hydraulic benders for tubing, pipe and conduit. Shows how to do various bending jobs quickly and easily to cut job time, reduce costs.

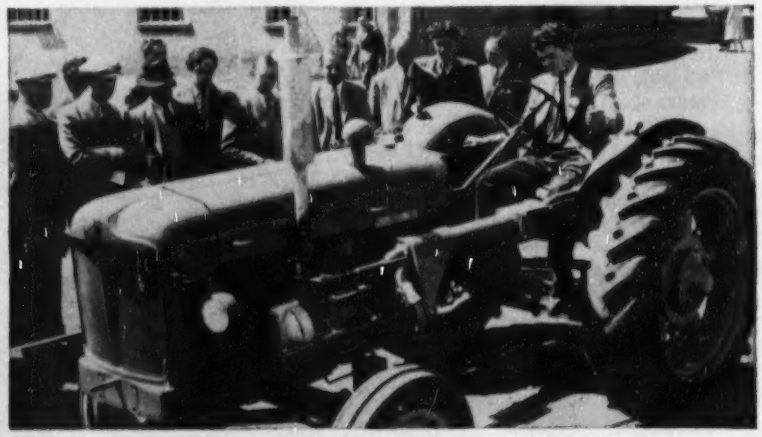
GREENLEE

GREENLEE TOOL CO.
2231 Columbia Ave., Rockford, Illinois

Cat graders get power steering unit

A power steering unit has been developed for Caterpillar motor graders. To be sold only through Caterpillar dealers, the unit will install for a total price of less than $300. Cat graders in the 12 and 112 (including the 9K) series can be fitted with one of two models of the power steering unit. The device consists of a Vickers hydraulic pump; a cylinder mounted on the front axle and controlled by a valve on the steering shaft. The valve is placed in a high location to keep it out of the dirt for trouble-free operation. All of the power to turn the wheels is supplied by the pump; a spring on the valve puts only enough tension on the steering wheel to provide the "feel" of steering. Road shock is reportedly eliminated. On ditching work it is of particular advantage to the operator to remove both hands from the wheel in order to handle control levers. The power steering unit automatically locks the front wheels in whatever position they are to hold the grader "on course". Manual steering is still possible in case of power failure. RIVINIUS, INC., EUREKA, ILL.

(*New Products continued on page 108*)



Torque converter—British style

Single-lever control is claimed with the use of an experimental British-built transmission. Hydraulic motors built into the rear wheels are fed oil under pressure from a variable delivery pump. The pump is driven by the tractor engine.

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Wrought iron pipe is a natural for this service because its advantages start with installation and continue in service. It's easily formed and welded, on the job. It bends true, and is free from "spring back." Its uniform structure pays off in sharp deep threads, sound welds. Its mechanical strength withstands damage on the job. In service, wrought iron's ability to resist corrosion gives you a longer lasting, more economical installation. Its high rate of heat emission means maximum snow melting efficiency. And because wrought iron pipe expands at virtually the same rate as concrete over wide temperature ranges, you don't have to worry about thermal cracks, loss of bond.

Our Special Report, *How Snow Melting Combats Winter Traffic Problems*, gives complete details, and documents a number of installations. You'll find it interesting and profitable reading. Write for a copy.

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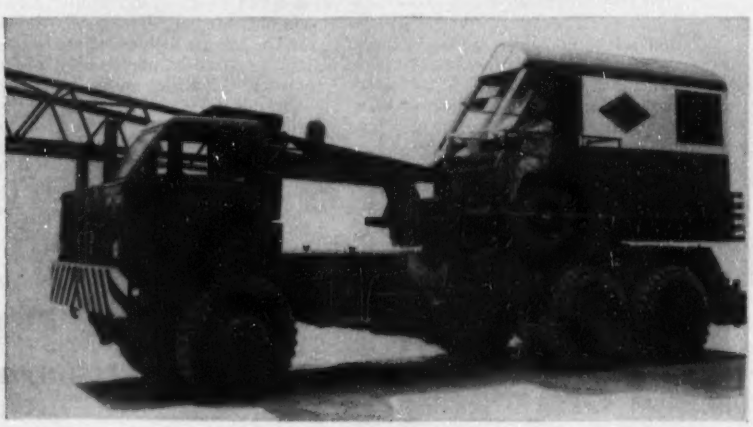
Hydraulic ram places mixer chute

Automatic adjustment of the discharge chute of mobile truck transit-mixers is provided by the Monarch electric hydraulic power control. One lever raises, lowers, or holds the chute. Available for 6 or 12-v systems, the Dyna-Chute combines the pump, motor, valve, oil reservoir, and solenoid in one unit. Also included in the kit is a fifteen foot insulated battery cable, hydraulic ram, flexible hose, and fittings for all average installations. The control is protected from the weather by a durable steel hood. According to the manufacturer the mounting is simple and can be completed with a minimum of time and tools. Monarch Road Machinery Co., 1331 Michigan St., N. E., Grand Rapids 6, Mich.

World's largest crane carrier?

Said to be the largest ever built, Dart's 45-ton crane carrier is powered with a 240 hp Waukesha gasoline engine. The unit utilizes a Fuller 10-speed transmission and 100,000-lb rear tandem axle. Tires are 14:00 x 24, single front and dual rear. Among the construction features incorporated in the new carrier are a box girder frame with single box outriggers with boxed beams extensible to 15½ ft. According to Dart, a one-man cab offers the operator exceptional visibility and Vickers hydraulic steering combined with a Ross steering gear makes the huge unit exceptionally easy to maneuver. The overall length of the car-

(*Continued on page* 110)



MULTI-PURPOSE LOADERS SAVE MONEY

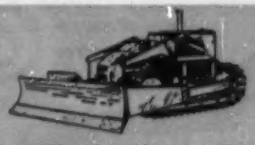
Examples of many uses for Eimco 105 Tractors with excavating attachments are sent in by Eimco's field engineers. The customer buys his Eimco for loading but usually finds that it also performs many additional jobs that make the 105 pay for itself quickly in bonus work.

The picture above shows an Eimco high discharge excavator attachment on an Eimco 105 Tractor loading into an ore bin. The owner decided he could save time by cutting a new road into his pit and found the 105 could cut its own road.

Many other Eimco 105 owners are finding them ideal for ripping up old curbs and paving, tearing out old foundations, digging ditches, basements, patching highways and many other jobs in the heat of the desert or the cold of the Yukon — Eimcos are tops on any job anywhere.

Write for more information.

Eimco 105



Eimco 105 with bulldozer attachment

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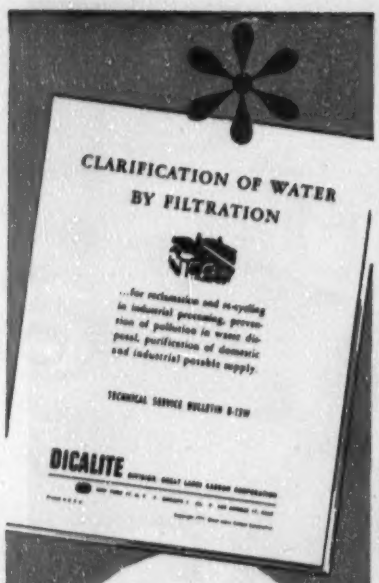

This FREE Bulletin gives valuable data on water filtration...

Many problems in the reclamation or recycling of water in industrial processing, in the prevention of pollution in waste disposal and in the purification of potable supply are answered in DICALITE'S BULLETIN B-12-W—"Clarification of Water by Filtration."

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GREAT LAKES CARBON CORPORATION
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Los Angeles 17, California

NEW PRODUCTS

rier is 29 ft, width 10 ft 6 in. and the gross weight without upperworks is 50,000 lbs. Optional wheelbases are provided to meet crane manufacturer's specifications. DART TRUCK CO., KANSAS CITY 8, MISSOURI.

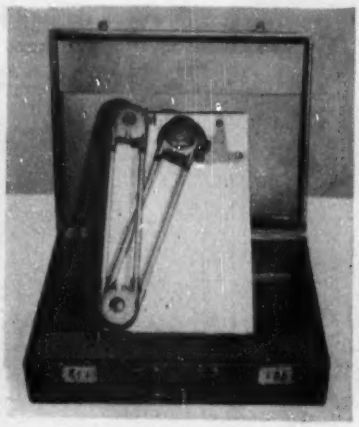
Small drafting and layout machine is highly portable

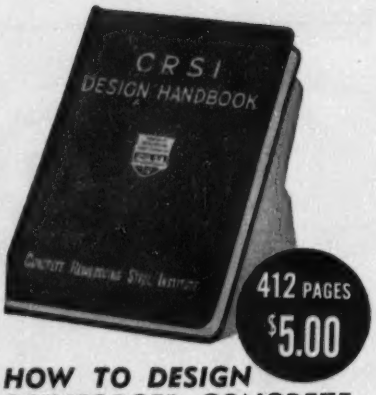
The Universal Desk-Topper drafting and layout machine consists of a newly designed drafting machine with a drawing capacity of 22 x 34 in., a 9-in. and a 15-in. engine-divided aluminum alloy scale, a folding board equipped with folding legs and rubber feet that, when opened, accommodates drawings up to 17 x 22 in., a box for instruments, a tracing paper dispenser, and a carrying carton or custom styled travel case.

The entire drafting system is light, portable and storable; the carrying carton or travel case holds everything —and machine, scales, board and instrument box will fit into a standard office desk drawer.

The Desk-Topper reportedly has all the features of full-size drafting machines—360 deg protractor 4-in. in dia., automatic 15 deg indexing, full base line selector, double 10 min vernier and clamp, elbow height adjustment, screw clamp, enclosed band and pulley arms and built-in brake for 10 deg board slope. By the use of an accessory C clamp the machine may be mounted on larger drawing boards or on a template in the shop. The vertically adjustable mounting permits direct layout work on sketch pads, plywood, sheet metal or any other material up to ¾ in. in thickness.

Five scale styles make the Universal Desk-Topper usable for many types of work. UNIVERSAL DRAFTING MACHINE CORP., 7960 LORAIN AVE., CLEVELAND, OHIO.





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NEW PRODUCTS

Lightweight paving breaker designed for accurate cuts

A new lightweight paving breaker, known as Model DB-35, is said to be a highly efficient tool for light excavation and demolition work on floors, walls and all types of masonry construction. Because of its light weight, it is reported to be particularly adaptable for horizontal trimming and similar jobs that require breaking to a dimensioned line.

Two features of the DB-35 are a chrome plated cylinder bore that is said to more than double the life of the air tool and a water plate valve with differential porting designed to assure positive piston hammer action.

Other features include a replaceable cylinder bushing that holds the front cushion; a metered throttle valve to aid light starting and running; air-inlet swivel with ground leak-proof joint and a filter screen to prevent foreign matter from entering the tool. A replaceable bronze throttle valve bushing stops air leaks and can be replaced without having to repair the handle.

The DB-35 has a net weight of 37 lbs., is 23¾ in. long. 14¾ in. wide and has a depth of 4½ in. DAVEY COMPRESSOR CO., KENT, OHIO.

Charger system reduces downtime and towing costs

The Alternator Charging System has been designed to provide quick, safe, on-the-spot battery charging and to eliminate downtime of rolling equipment.

The system is installed in a conventional service vehicle replacing a standard generator. The complete rig consists of the alternator, a rectifier to change the alternating current to direct current, and a special regulator.

Two cables are permanently attached to the service vehicle's rectifier; clips with shields are on the other ends of the cables that are coiled and hung on the fire wall of the truck when not in use. In operation, these cables are attached to a discharged battery of a disabled vehicle, and with the service car's engine at fast idle, the alternator system produces about 80 amps. In five or ten minutes, the discharged battery is able to start the vehicle, providing the battery was not originally dead.

In addition to minimizing equipment downtime and providing better service, the use of the quick charge equipment also reduces the number of spare batteries that must be kept on hand. LEECE-NEVILLE CO., 5109 HAMILTON AVE., CLEVELAND 14, OHIO.

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EDITORIALS

Nuclear power is on the way

EXPERIMENTATION IS THE WORD best describing the situation that will be prevalent in the nuclear power field for some years to come, perhaps throughout the next decade. That is the conclusion to be drawn from the experts who spoke at the atomic energy forum sponsored by the National Industrial Conference Board two weeks ago.

Nor is such a conclusion in any way disappointing, for now that doubts have disappeared concerning the practicability of nuclear power, only experimentation can determine its practicality. In short, it benefits us little to generate power from the heat of atomic fission if that power costs too much. And it is with all eyes on costs that experimentation is being undertaken now on many fronts.

Although there are at least five types of reactors which experts think might produce power at commercial prices, cost analyses, at this stage, provide no conclusive comparisons with conventional power plants, nor indeed show decisive advantages of one reactor type over another. Experiments, initially expensive for both government and industry, are counted on to remedy this situation. If power costs are not low enough at first, it is then hoped that operating experience with the experimental reactors will lead to design improvements, and thus to step-by-step reduction of costs.

At present most nuclear power plants under consideration consist of two sections—one containing fissionable fuel, a reactor and a heat exchanger and the other housing turbo-generators. The latter section is expected to be of conventional construction, and cost estimates for it should be fairly accurate. In contrast, costs for the portions of a plant containing radioactive materials are very difficult to estimate and yet offer the greatest opportunities for savings.

Because of lack of operating experience and the hazards of radioactivity, the probability is good that the nuclear plants to be built during the next decade will be highly conservative in design. Sites will be unduly large to provide a substantial exclusion area, for protection against accidents. Equipment will be made of unnecessarily expensive materials, to preclude deterioration. And shields may be much thicker than needed to safeguard personnel. In time, these excesses will be pared down.

Chances are good also that the reactor portion—if not the whole plant—will be built underground as an additional precaution against accidents. Later on, experience may show that such construction will permit a considerable reduction in land requirements for exclusion purposes and a cut in shield costs.

Many private concerns are showing interest in the various reactor designs. One firm—Duquesne Light & Power Co.—assisted by the Atomic Energy Commission, has already started construction of a nuclear power plant. In addition, the armed forces are developing reactors that may have important civilian applications. As a result, the tempo of nuclear power construction should step up at a rapid rate in the next few years. And as experimentation progresses, the chances for success increase. Nuclear power is definitely on the way.

Bidding clarification promised

IT IS GOOD NEWS that the ASCE Board of Direction through its committee on professional practice is going to develop "a clear definition of what constitutes bidding on a price basis." That is exactly what editorials on this page have been urging for nearly eight years, yet up to now each editorial has been greeted with a barrage of criticism to the effect that the ASCE code of ethics is inviolate.

Unfortunately, in the meantime, competition for engineering engagements has resulted in an increasing variety of procedures for submitting proposals and evaluating them, which have an uncertain ethical standing. Worse still, the public has been permitted to lose sight of the kind of bidding the code was meant to prohibit. A willingness, therefore, to examine the code to determine if its wording is clear and unequivocal as to just what methods of securing engineering services are unprofessional is a major advance.

The initial editorial on this subject, January 9, 1947, entitled "Bidding for engineering services", said in part, "What is needed is an uninhibited analysis of the present rules of the game in the light of current conditions to determine whether a change is indicated. The study must include a review of codes of ethics and practice." It may be added that in such a review the guiding principle should be to see first that service in the public interest shows clearly in the wording, and second that it will be plainly evident to engineers just what types of bidding practice are considered unethical and what are not. As President-elect Glidden of the ASCE aptly stated in referring to the definition study, "On border-line questions in this category, such a definition will be most helpful."

With recognition that clarification of the definition of bidding on a price basis is needed, a major hurdle has been passed. It should be possible now to approach the problem in its true light—that of developing a guide that will keep professional standards high and at the same time generate popular public support against bidding practices that are not in the public interest. If to its already commendable action the ASCE Board of Direction can add quick results in the way of "a clear definition", it will have performed a great service to the profession.

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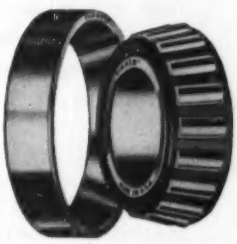

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